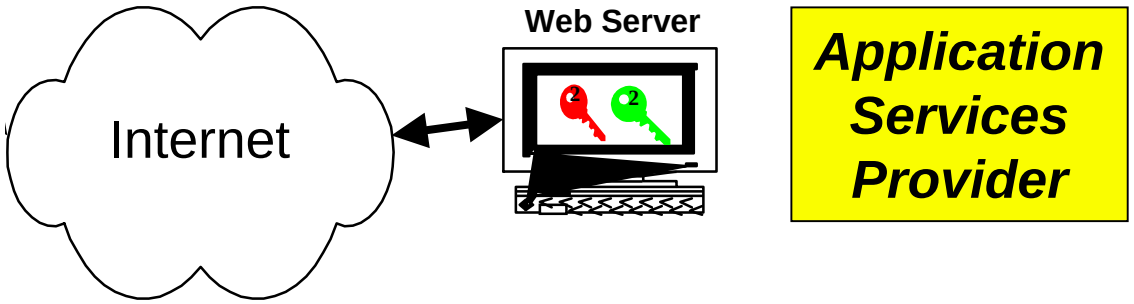
Testimony of
John T. Lynch
Vice President, ChimeTrust
to NCVHS
October 27, 2000

To Log On, MD Identifies Self Using Name, Pin number



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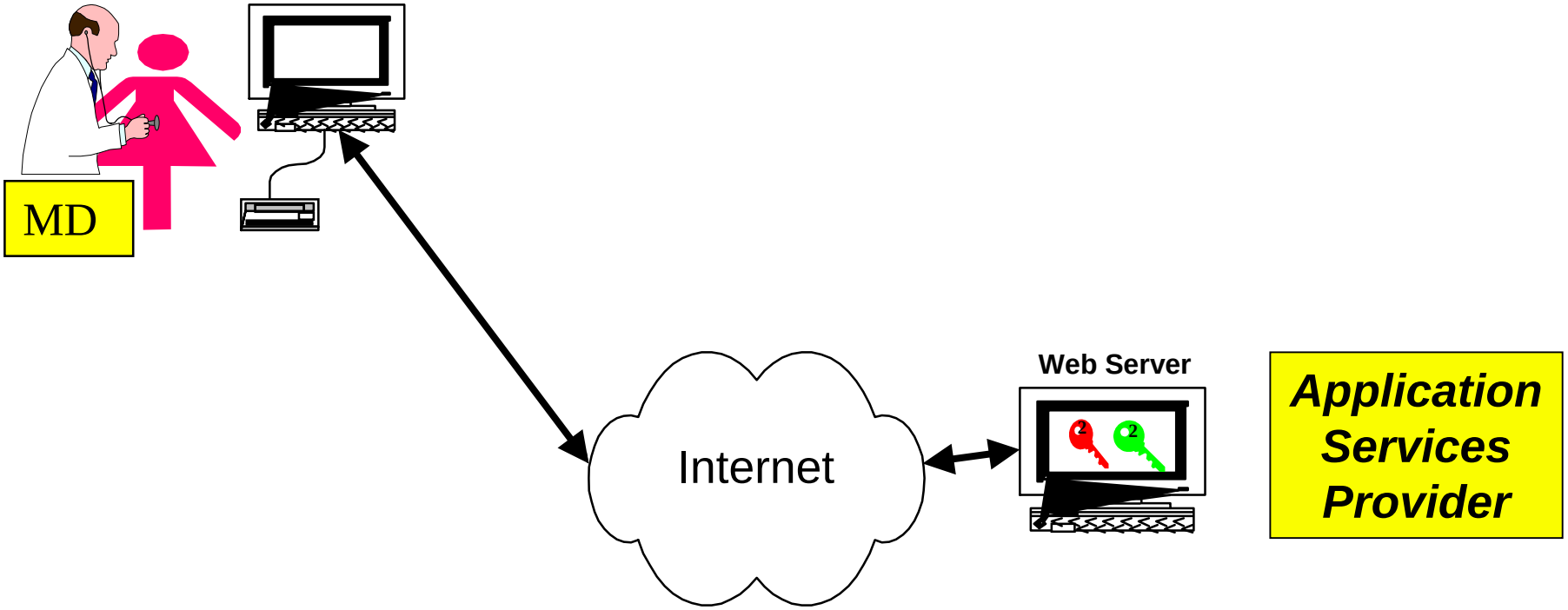
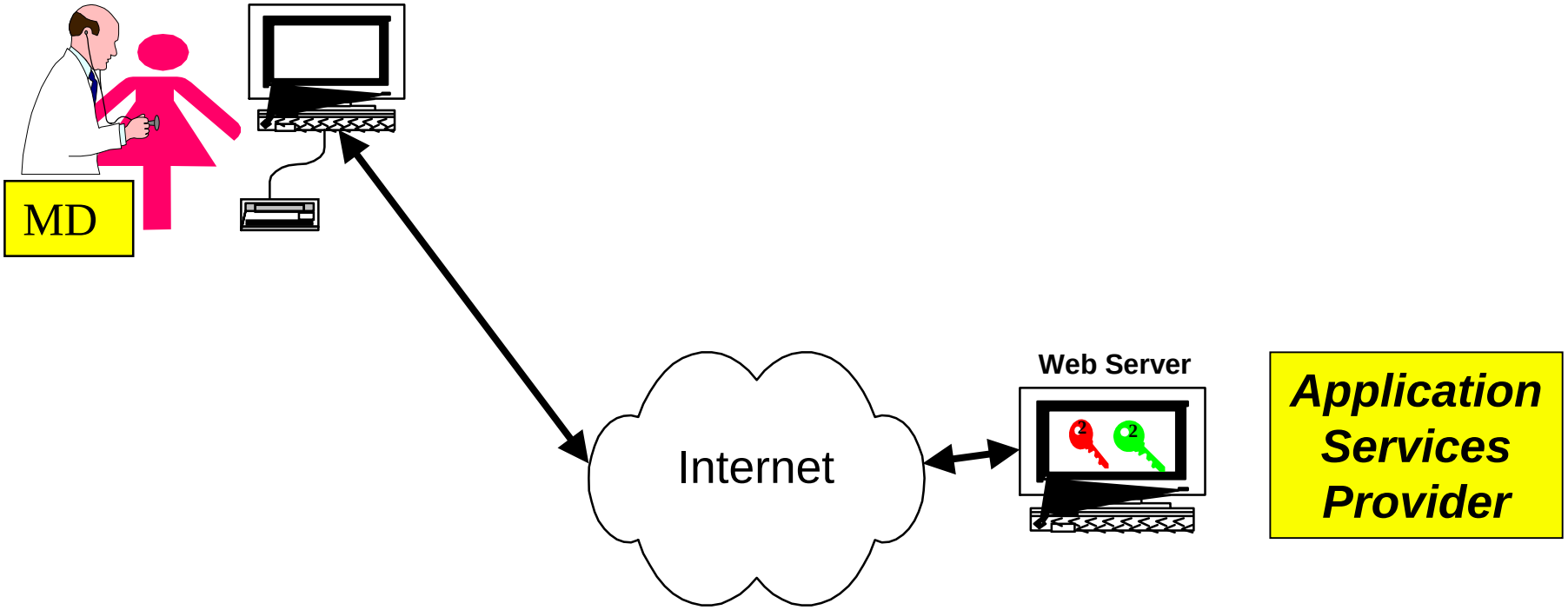


MD Authenticated using Digital Certificate on Smart Card



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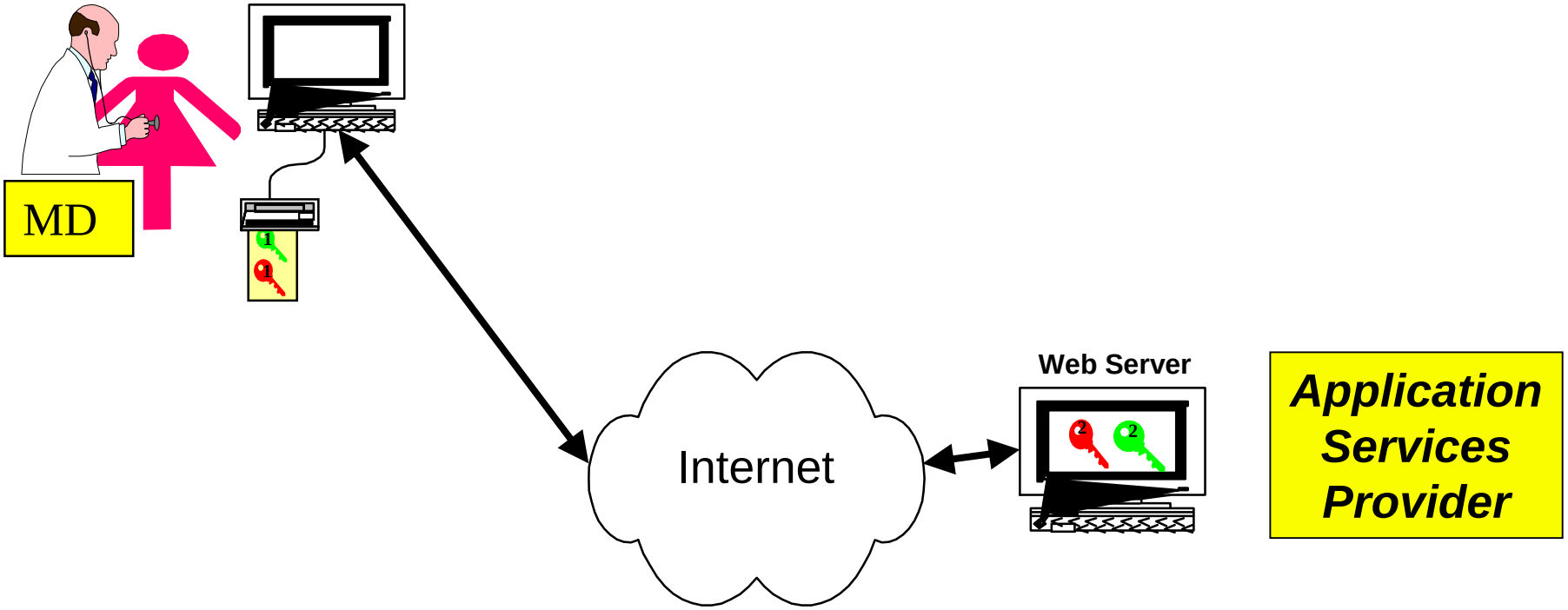
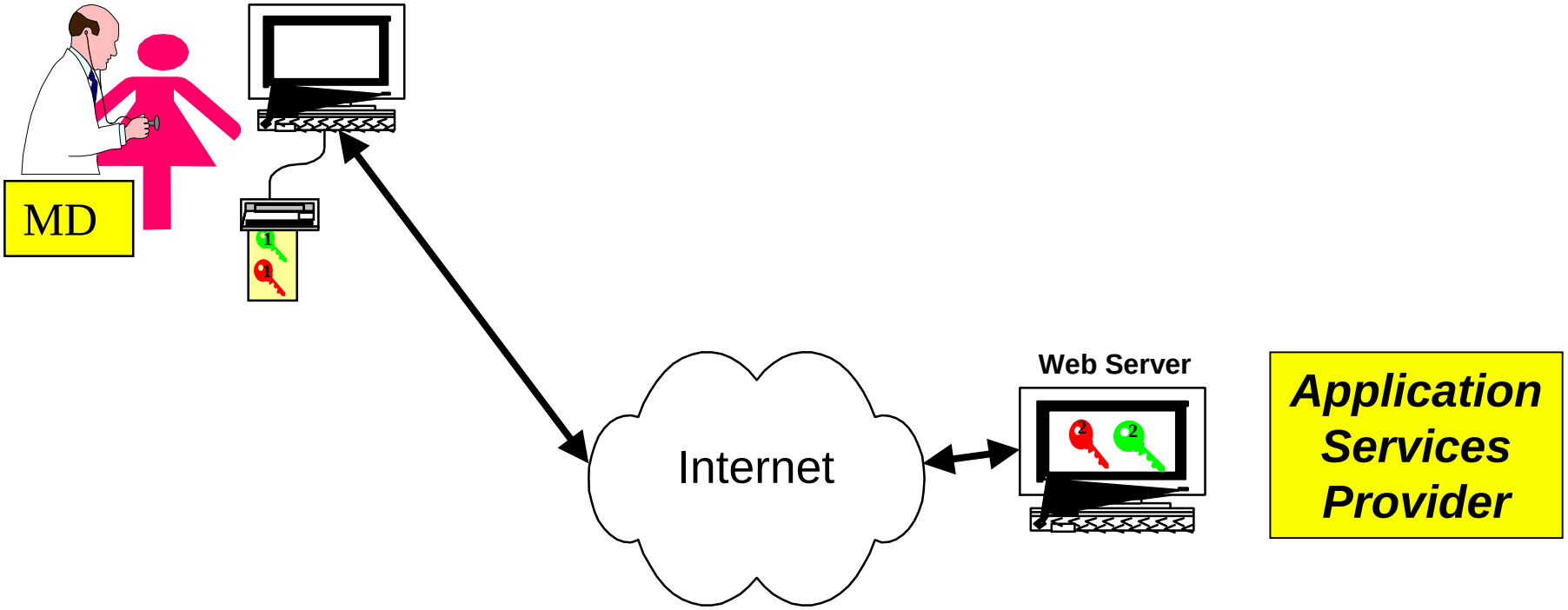
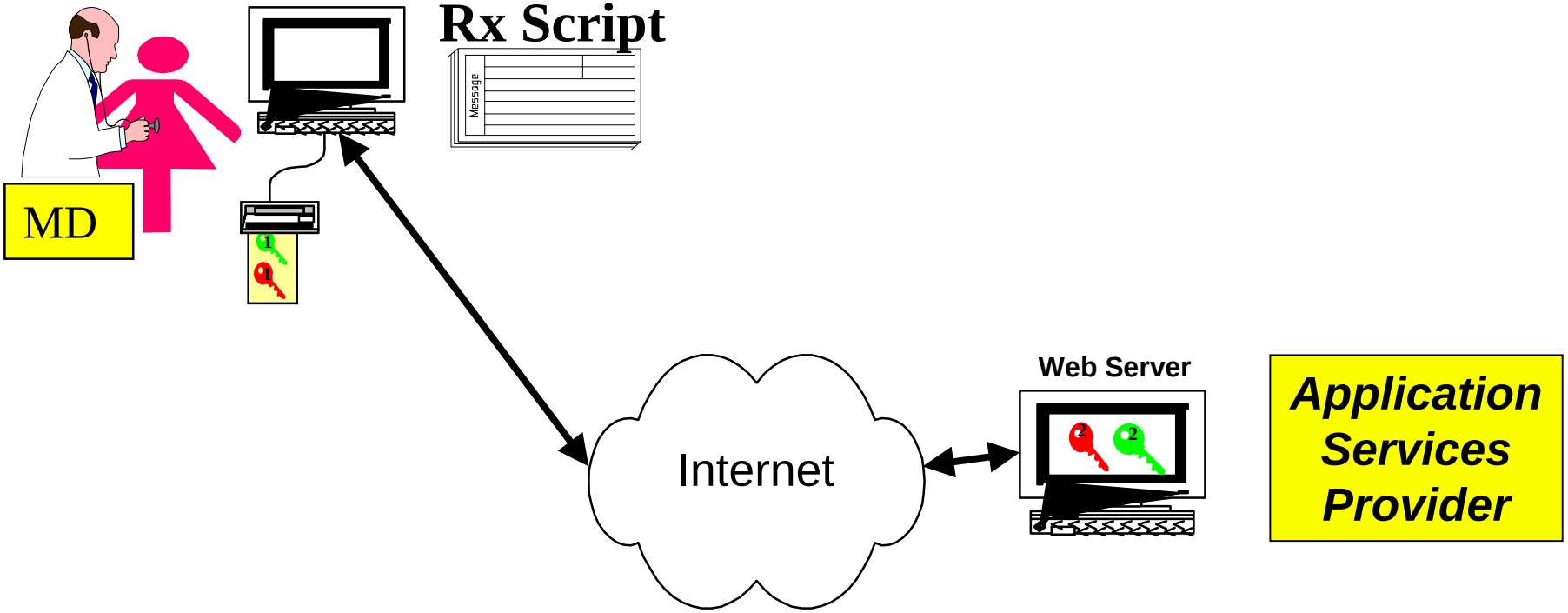


Physician writes and Signs Prescription



Physician writes and Signs Prescription



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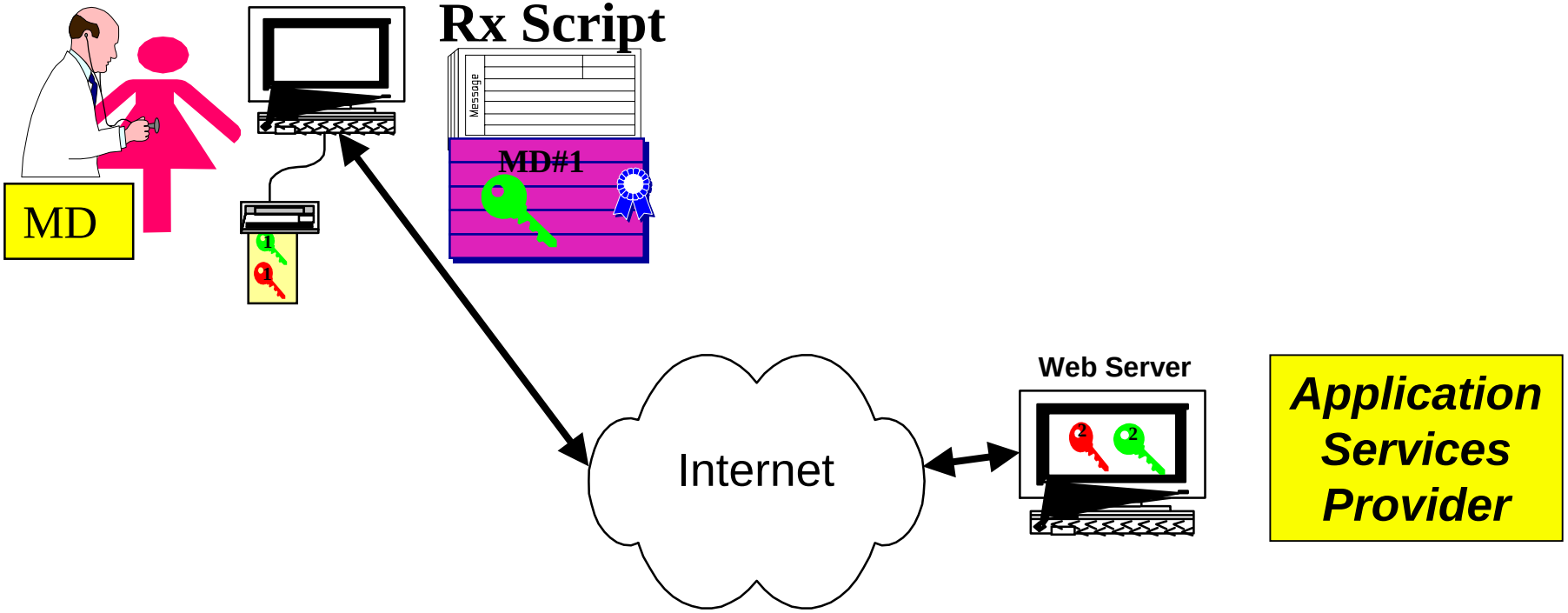
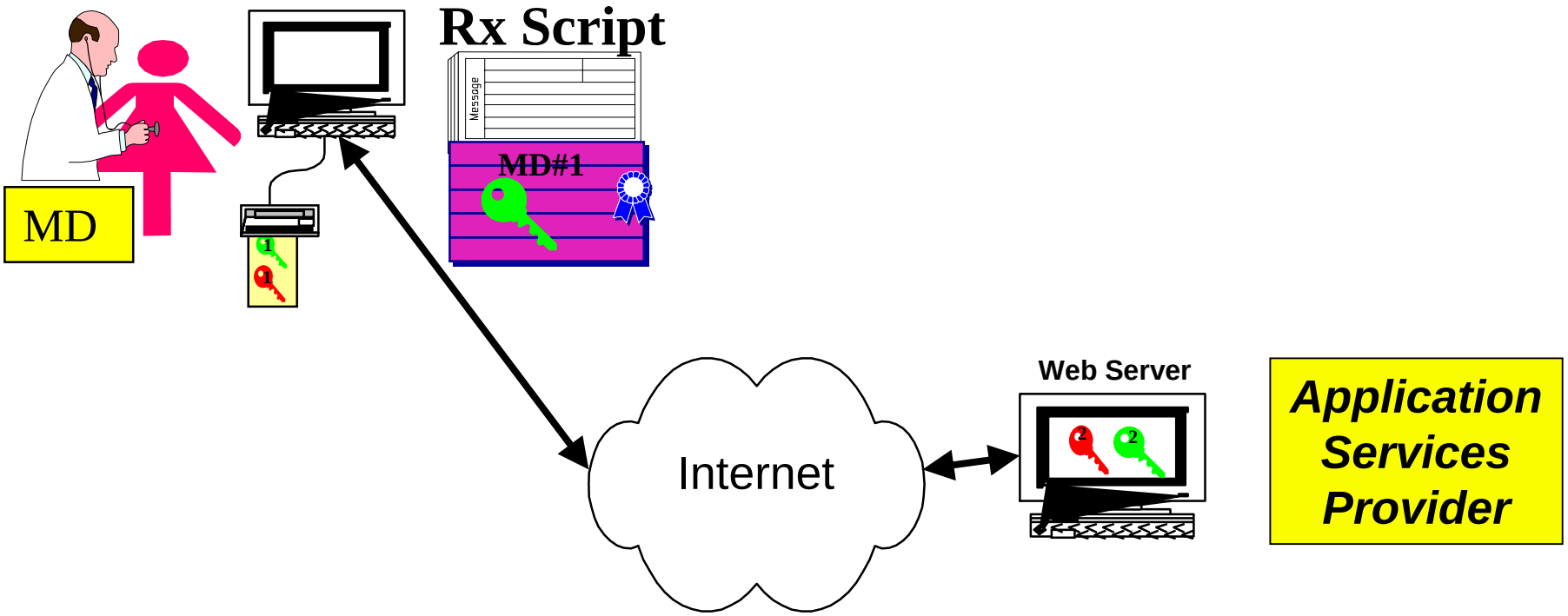


MD looks up pharmacy Public Key in Directory, encrypts script



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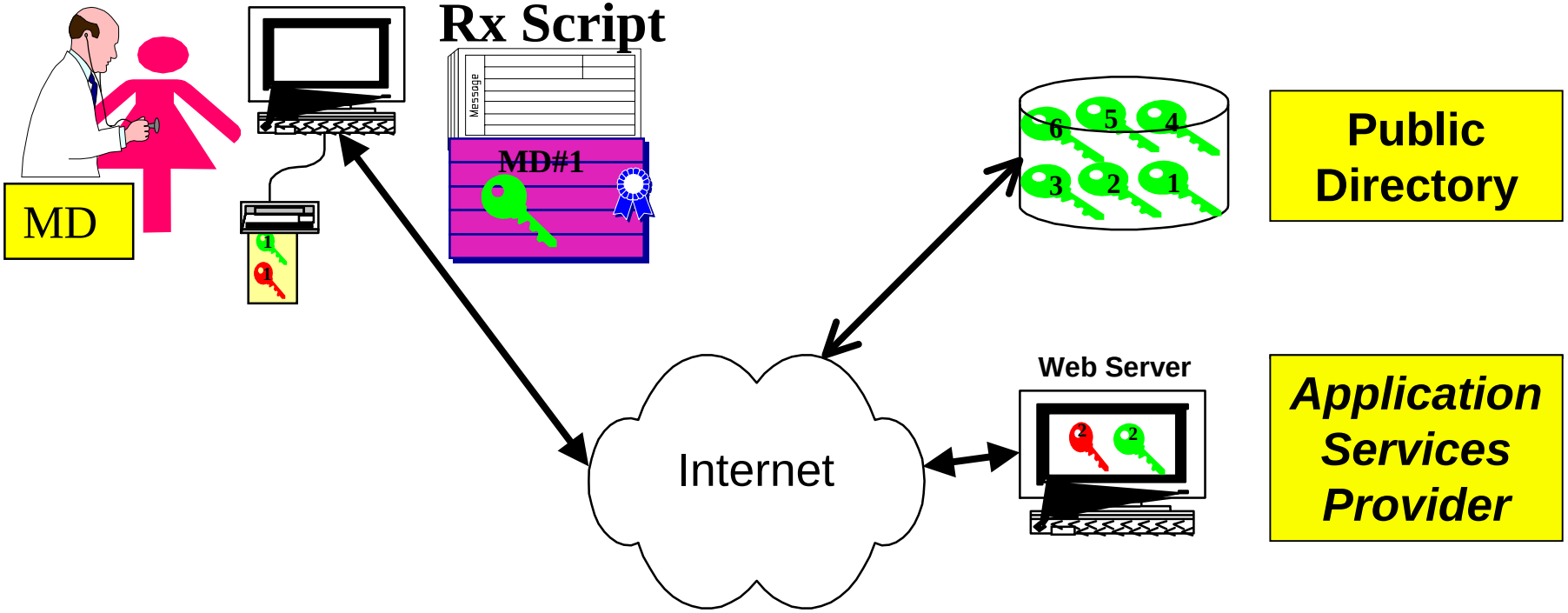

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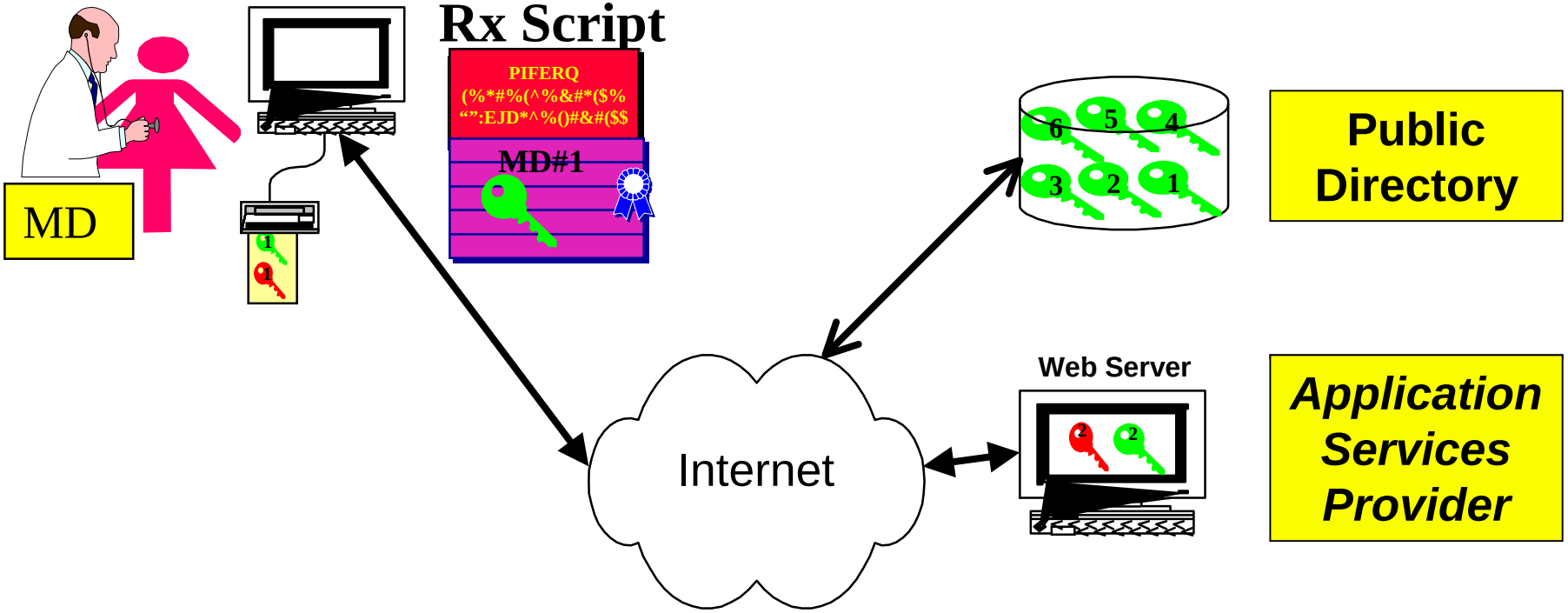

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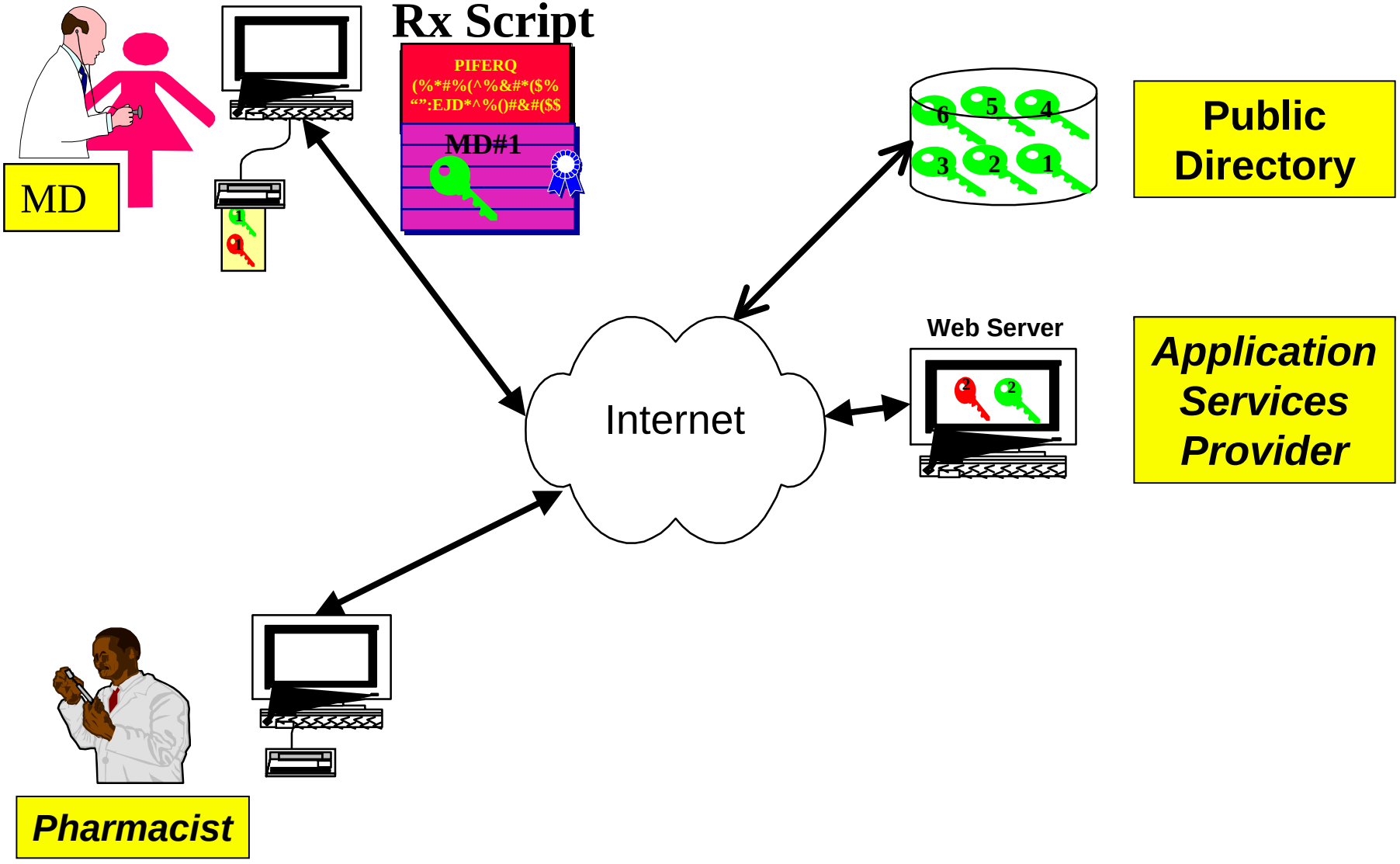

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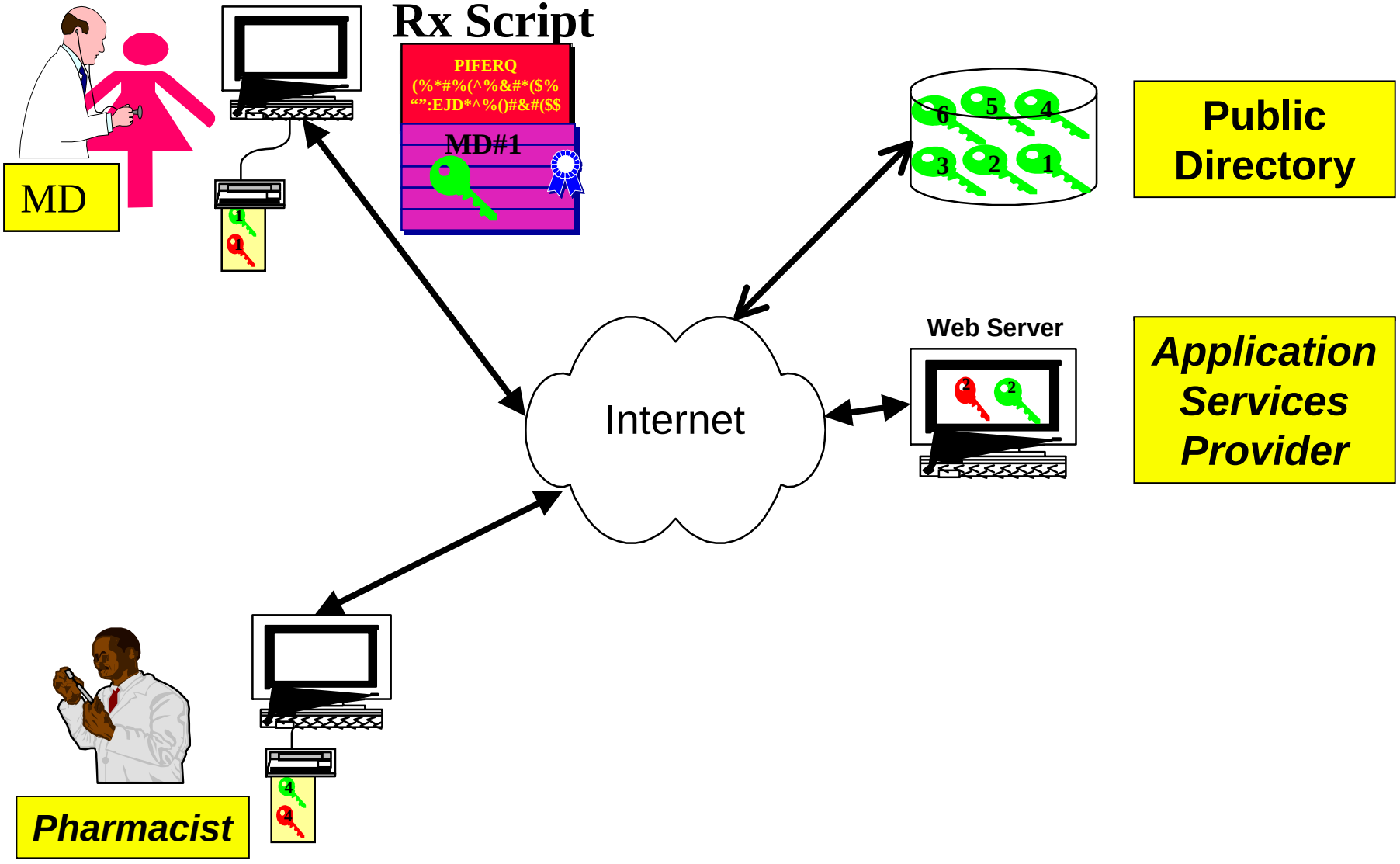
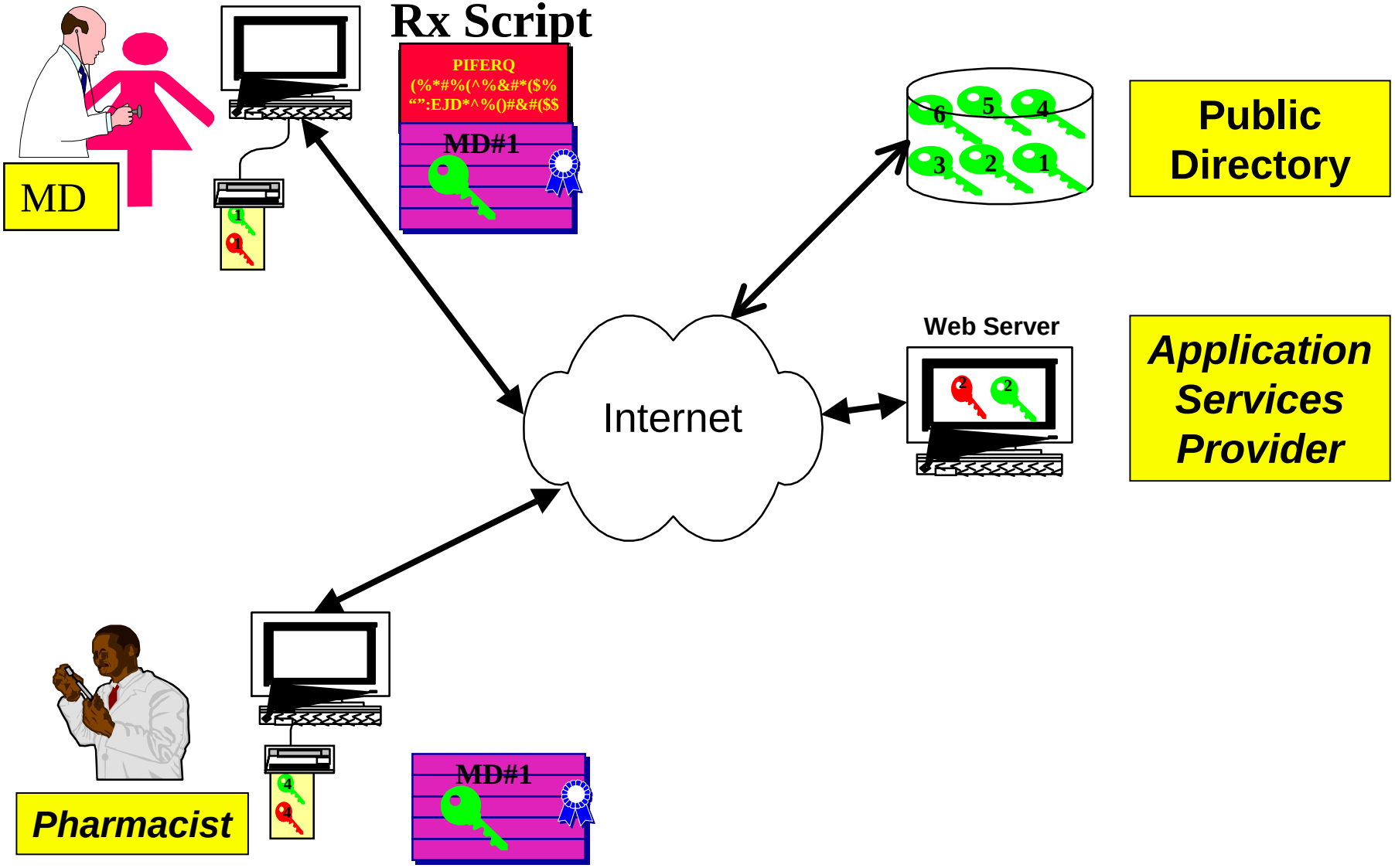
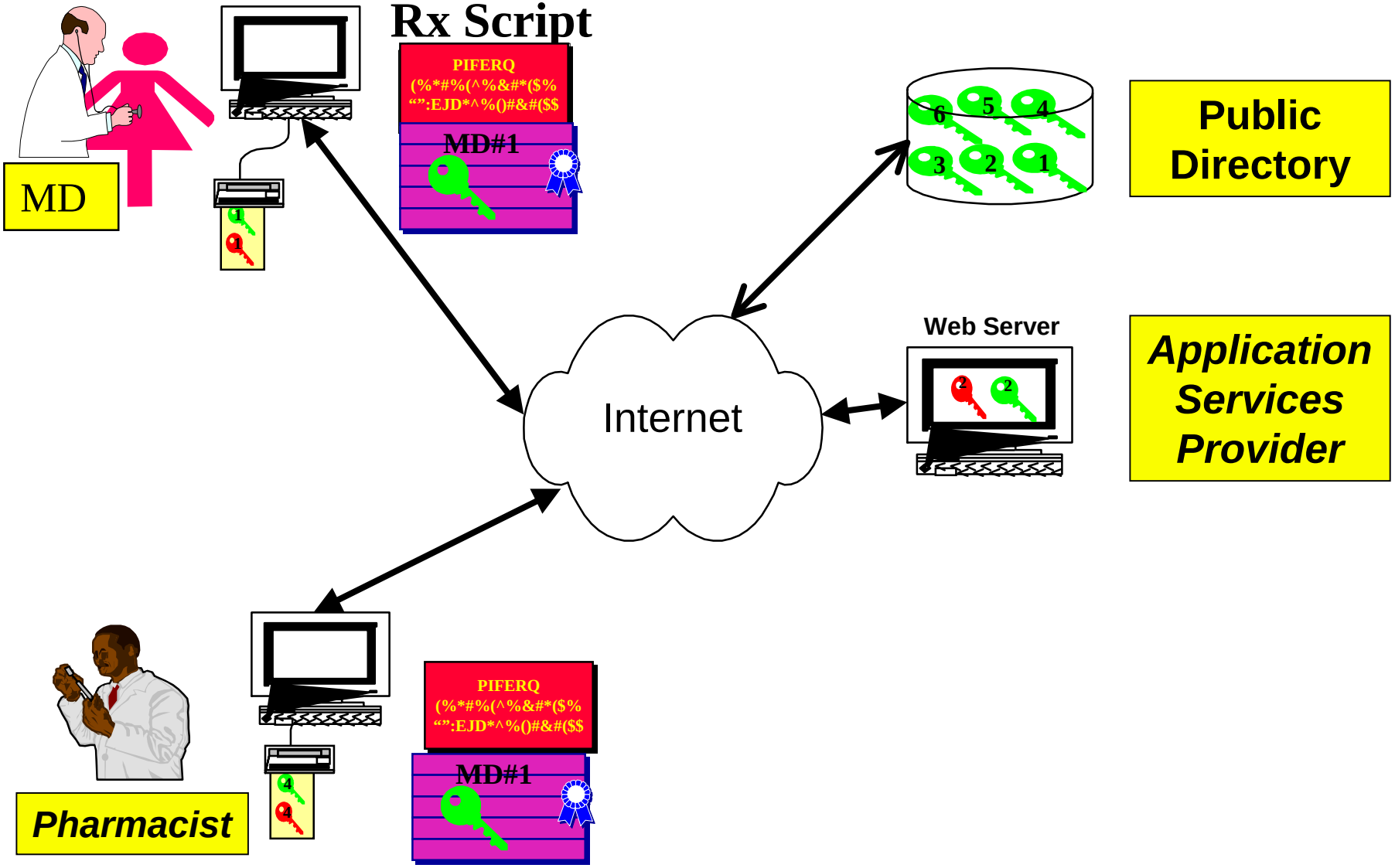


Pharmacist decrypts script



Pharmacist decrypts script



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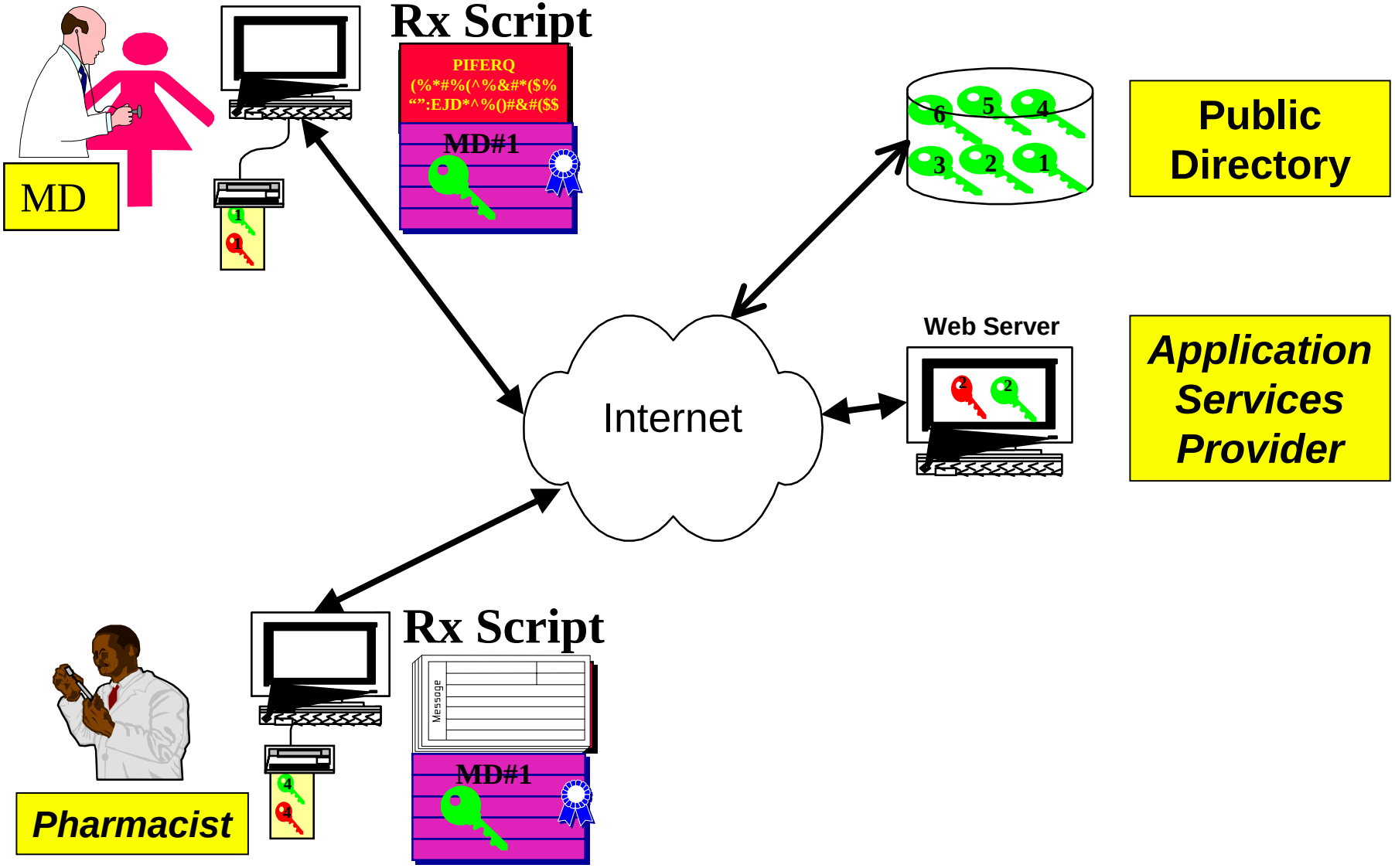
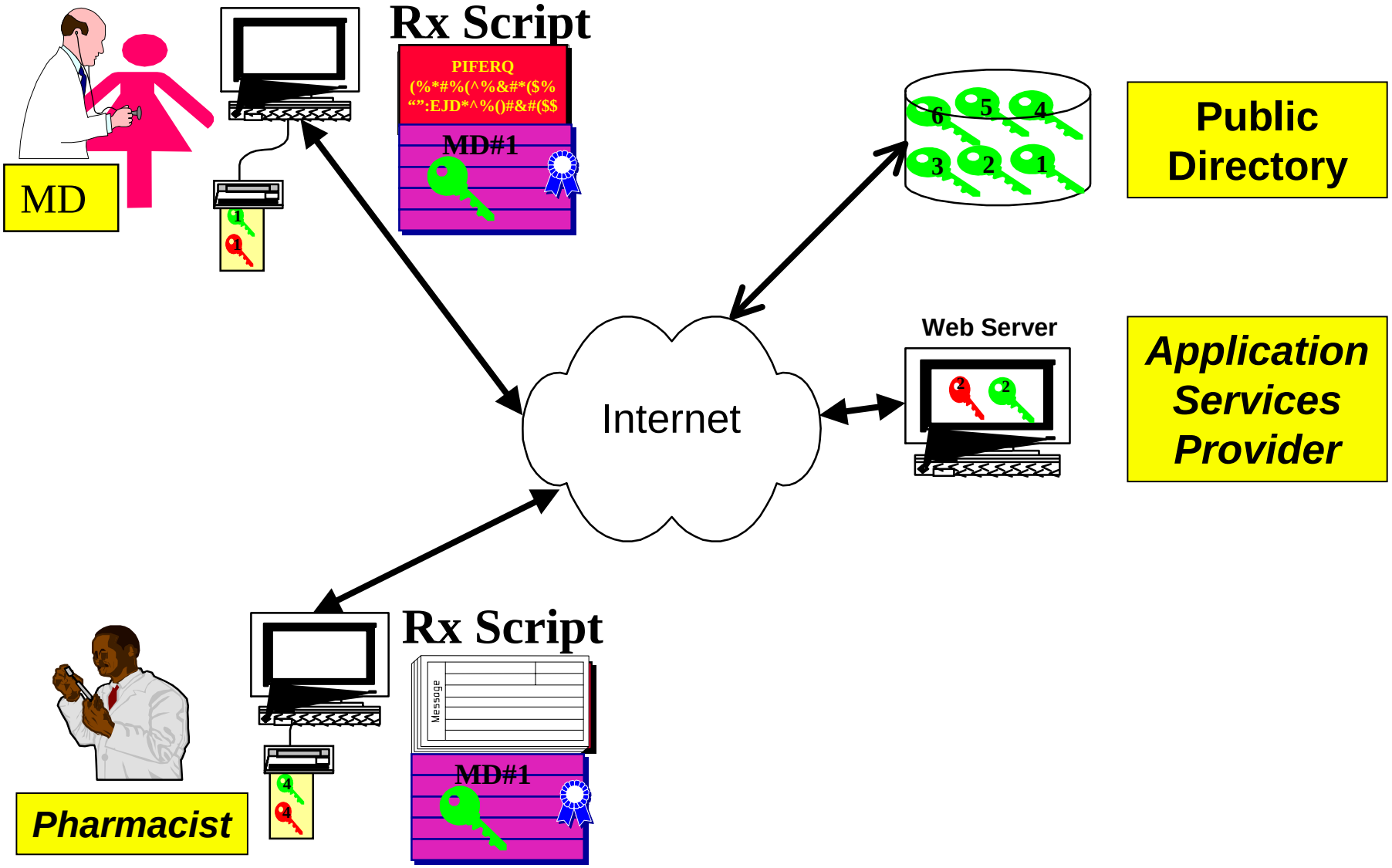


Pharmacist validates Script



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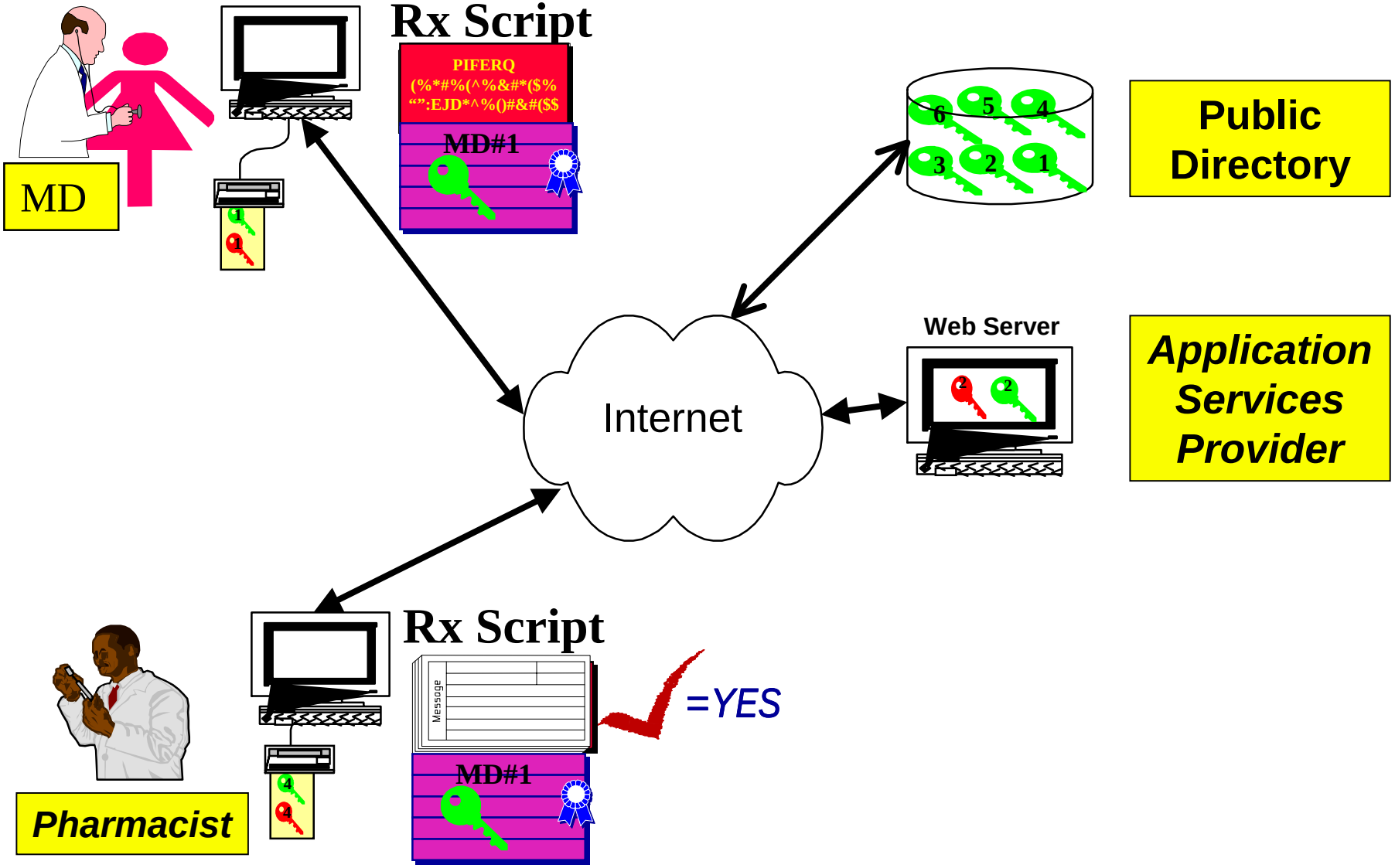
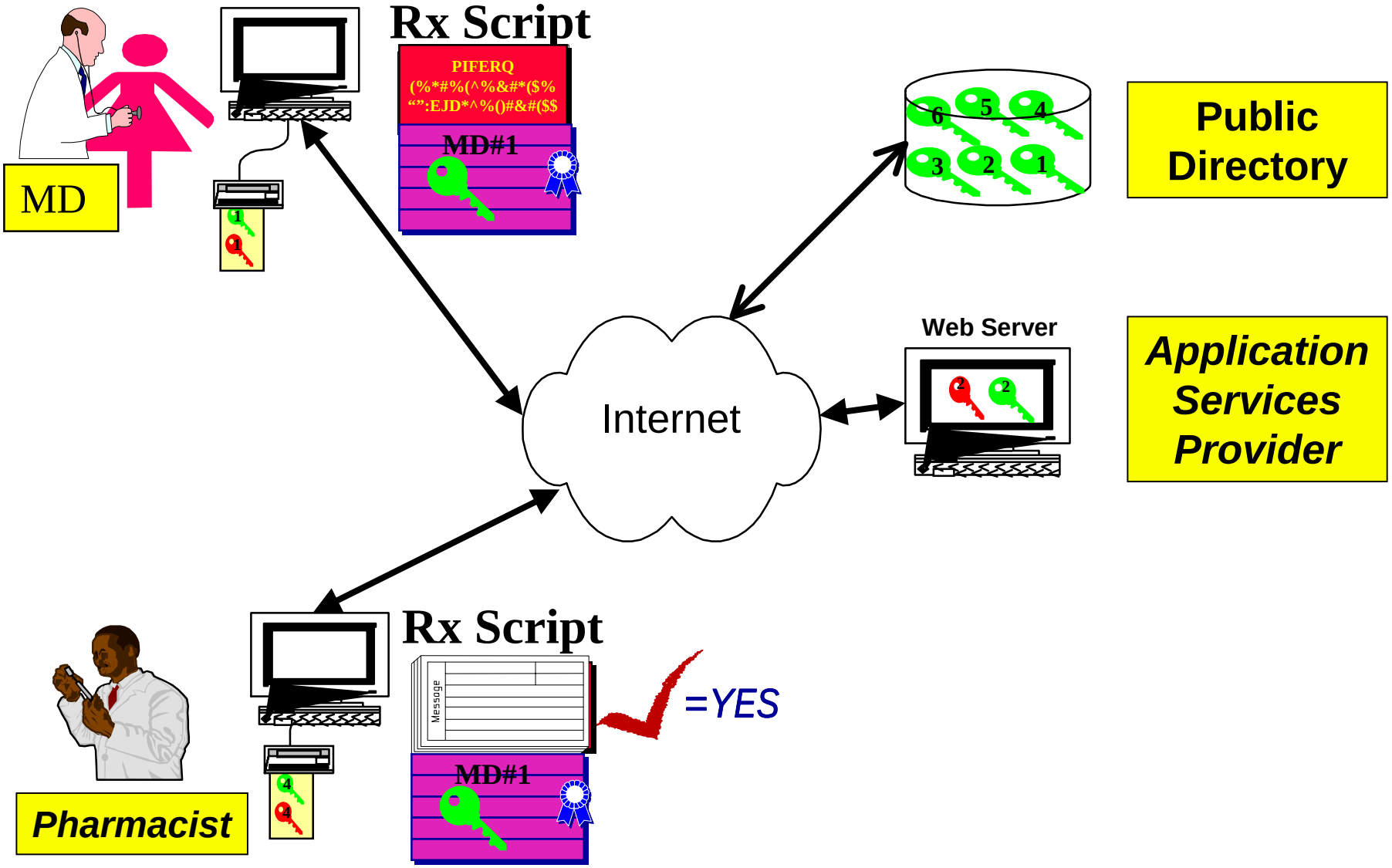


Pharmacy validates MD, Signatures



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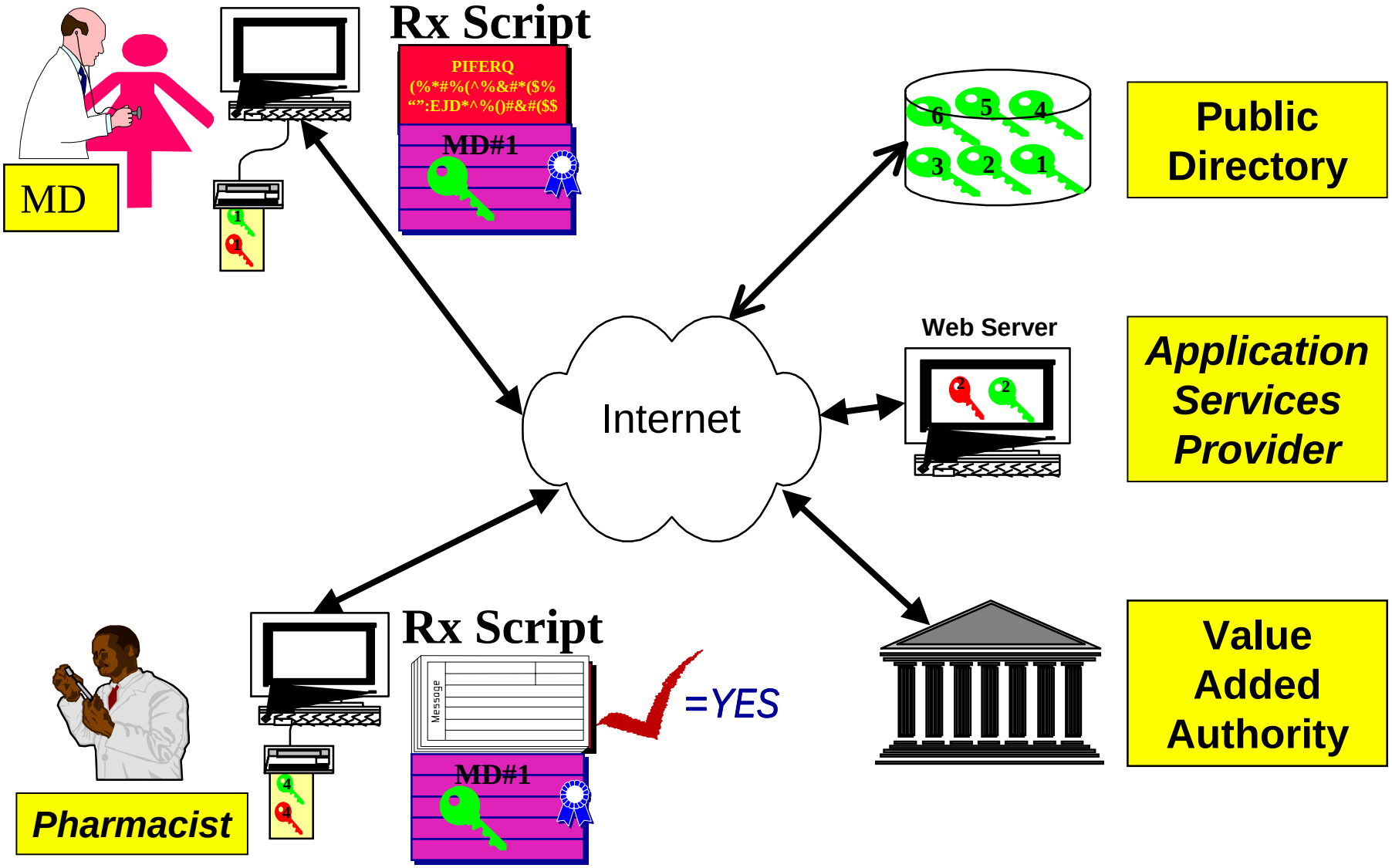
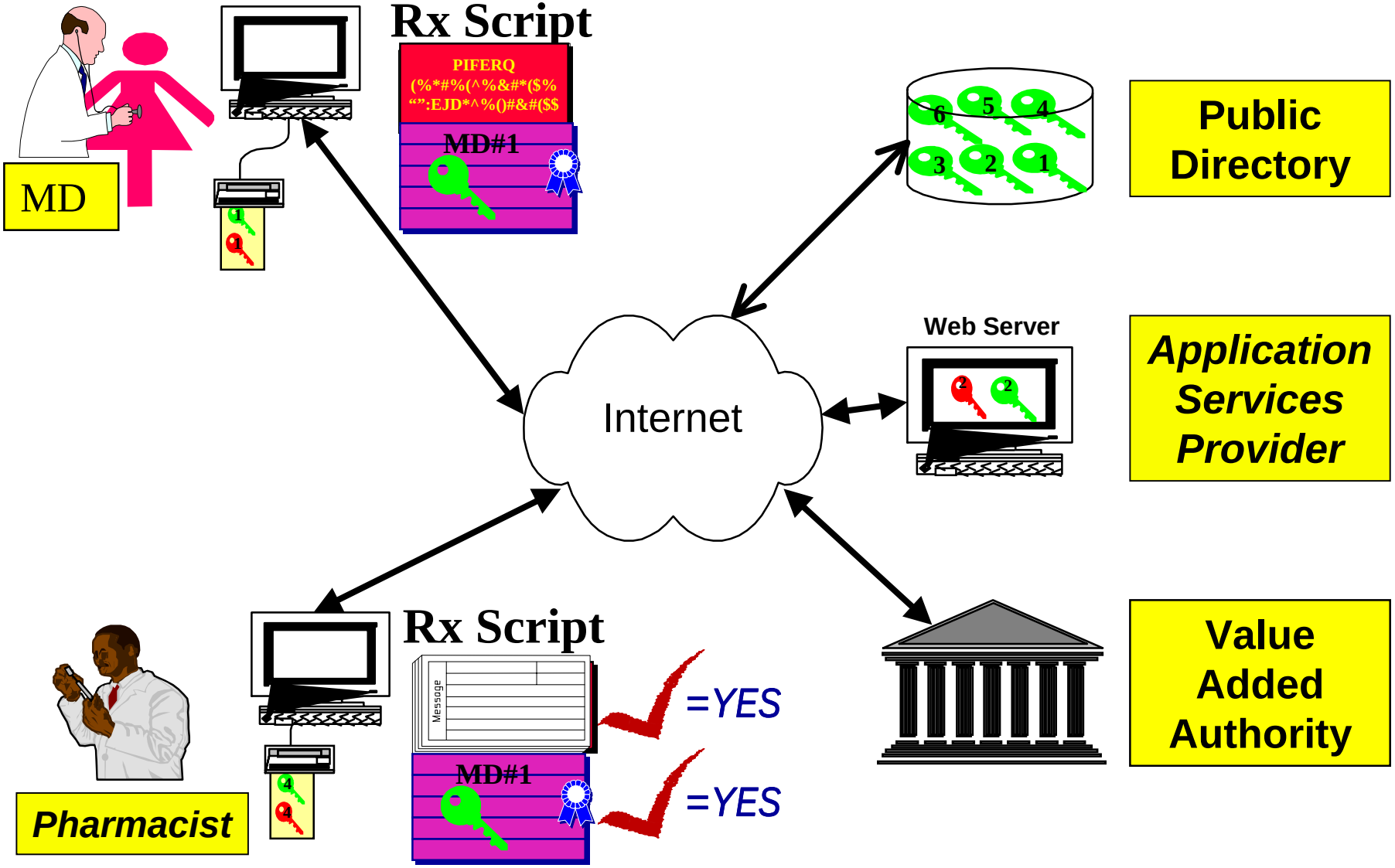


Pharmacy validates MD, Signatures



Healthcare Digital Signature Requirements:

- Chain-of-Trust/ interoperability Across the Healthcare Community established
- 24x7x365 reliability/availability (biometric sensitivity/central servers…)
- Standards based: X.509; LDAP; ASTM ????
- Trusted Healthcare root (CA) authenticating signature
- Professional healthcare credentials BOUND to identity.
- Non-repudiation thru user control of identity - no centralized, vulnerable storage; no backup.
- Signature validity tied to role based certificates: identity, multiple roles, credentials.
- Mobile Identity- sign anywhere
- One identity - Multiple uses: corporate badge; CPU; physical plant access.
- Distinguish signature certificate from encryption certificate.
- Differentiation of identities for patient, employer, licensed and board certified individuals.
- Certificate/signature validation in real time
- Transcend and incorporate state Jurisdictional variations ie. Licensure/signature.
- Integration of legacy systems.
- Non Reputable retention/validation for 25 years
- Multiple signatures
- Transcends industry boundaries (provider/Insurers/Employers/Patients)

Enabling Solution:
Trusted Healthcare Identity Service

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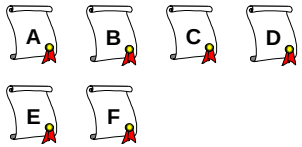
Trusted Healthcare Identity Service

Healthcare Specific Policies



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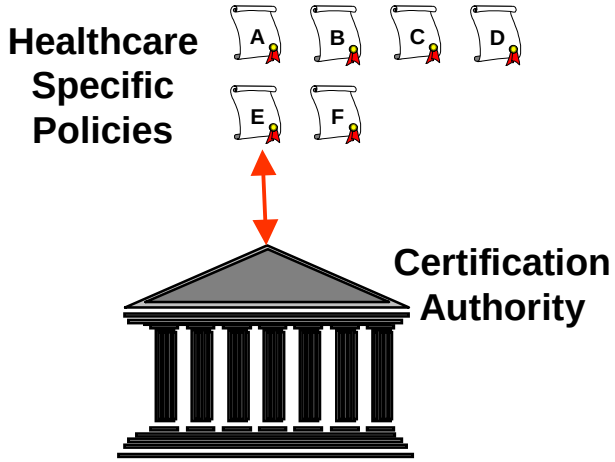

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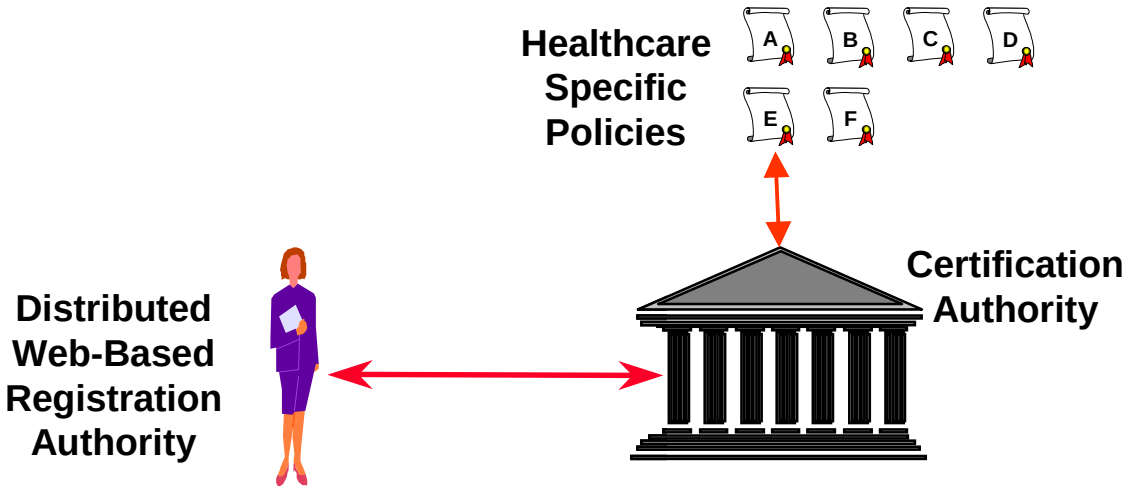

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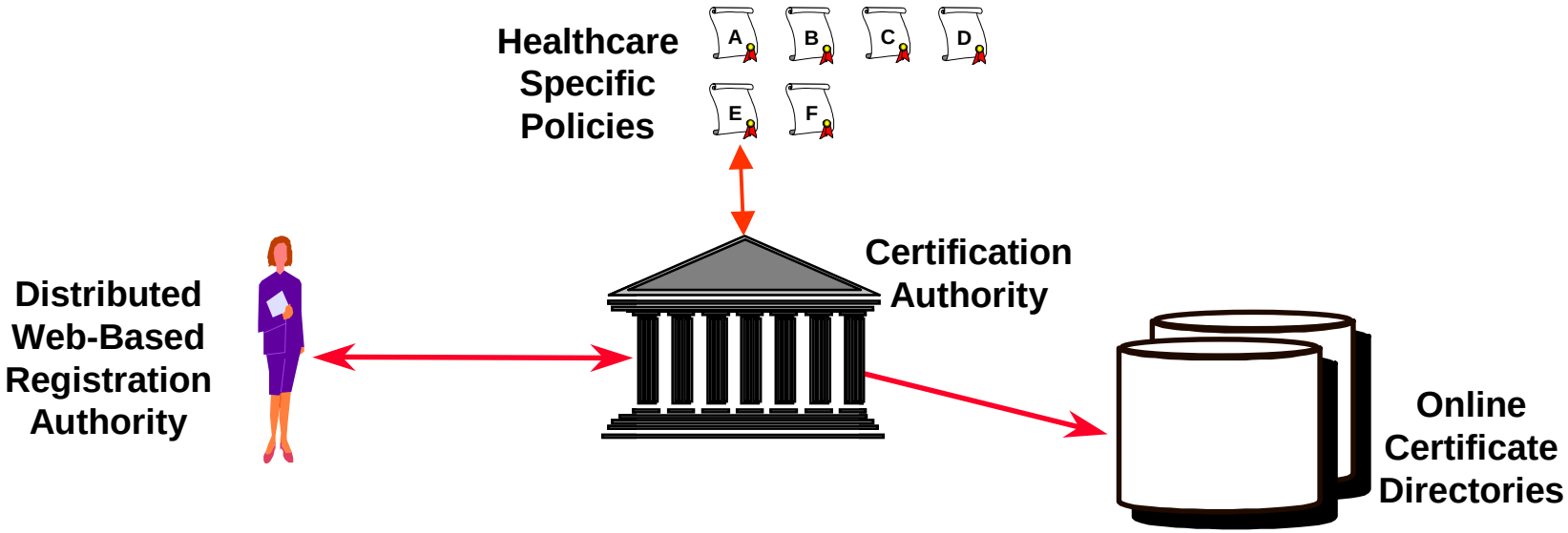

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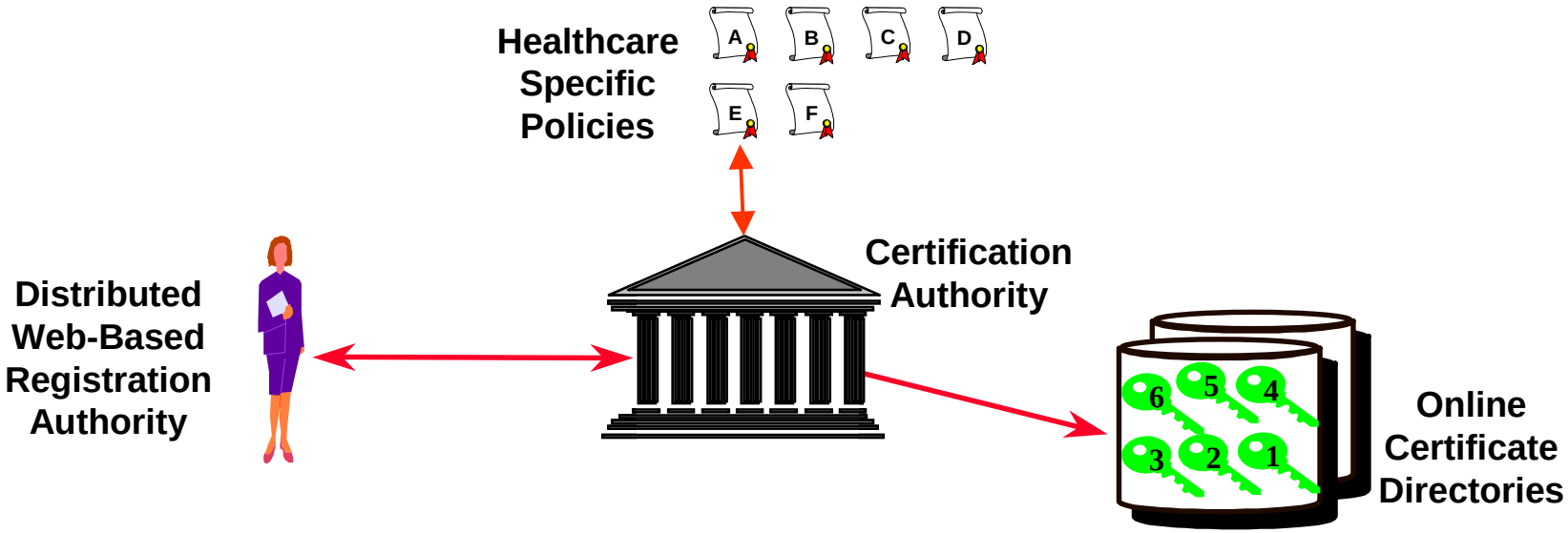

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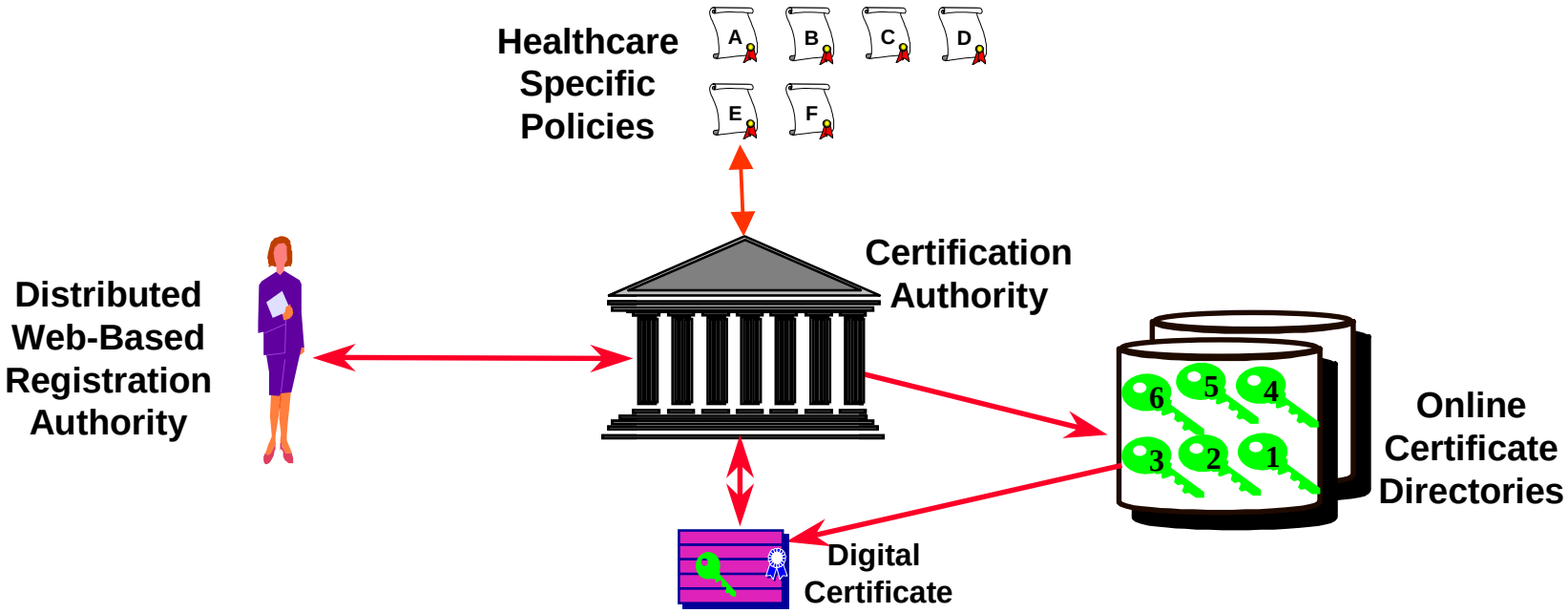

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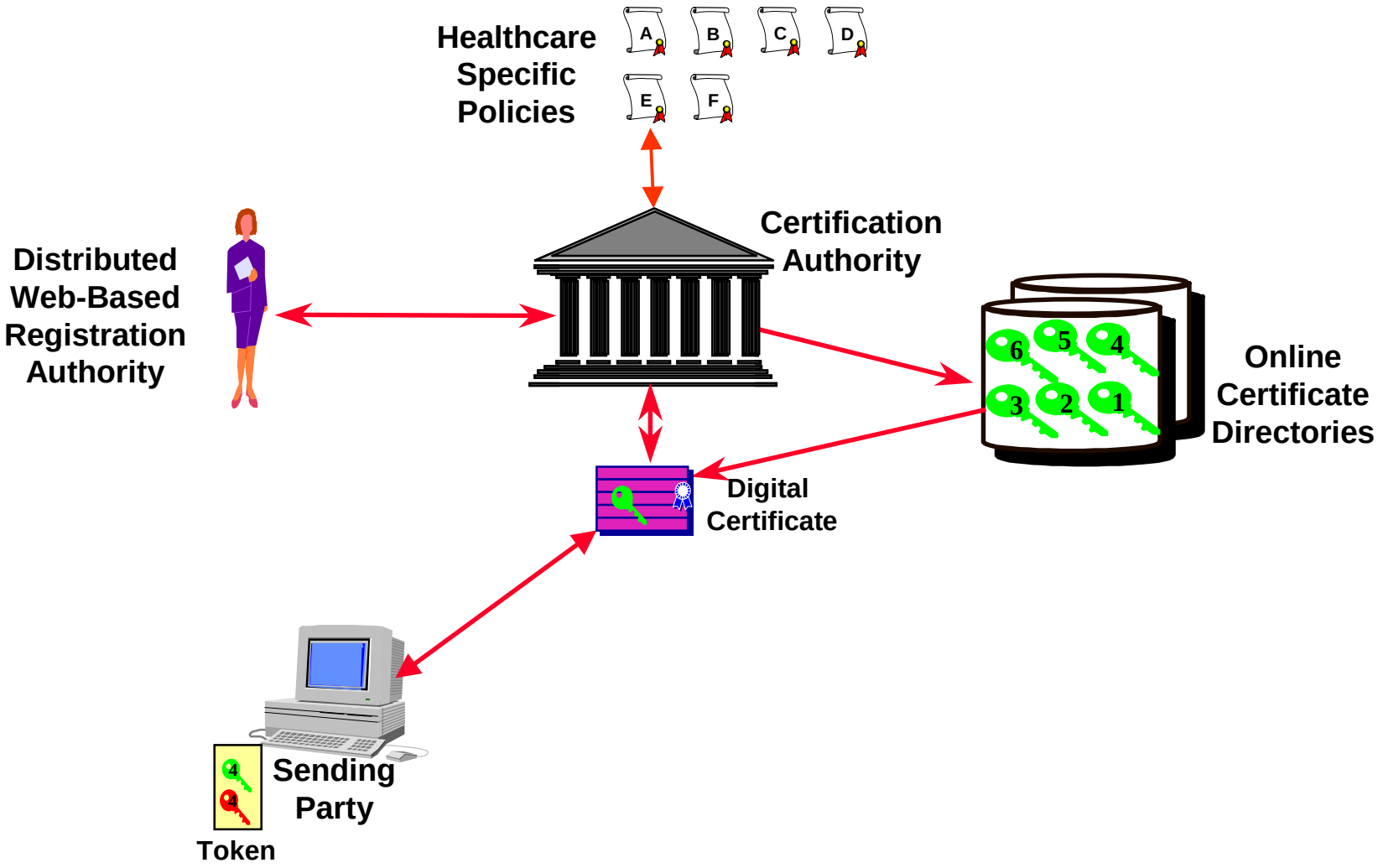
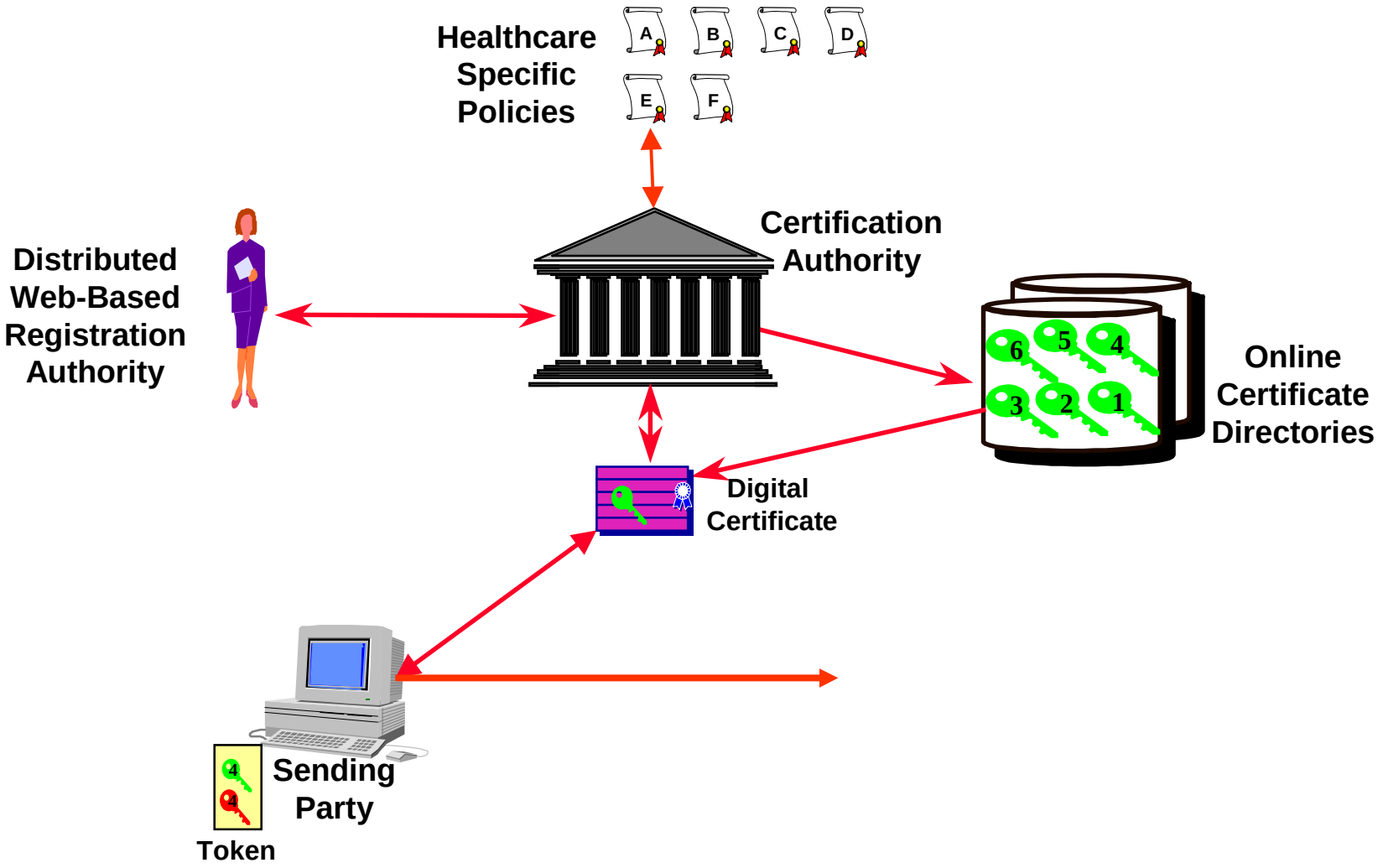
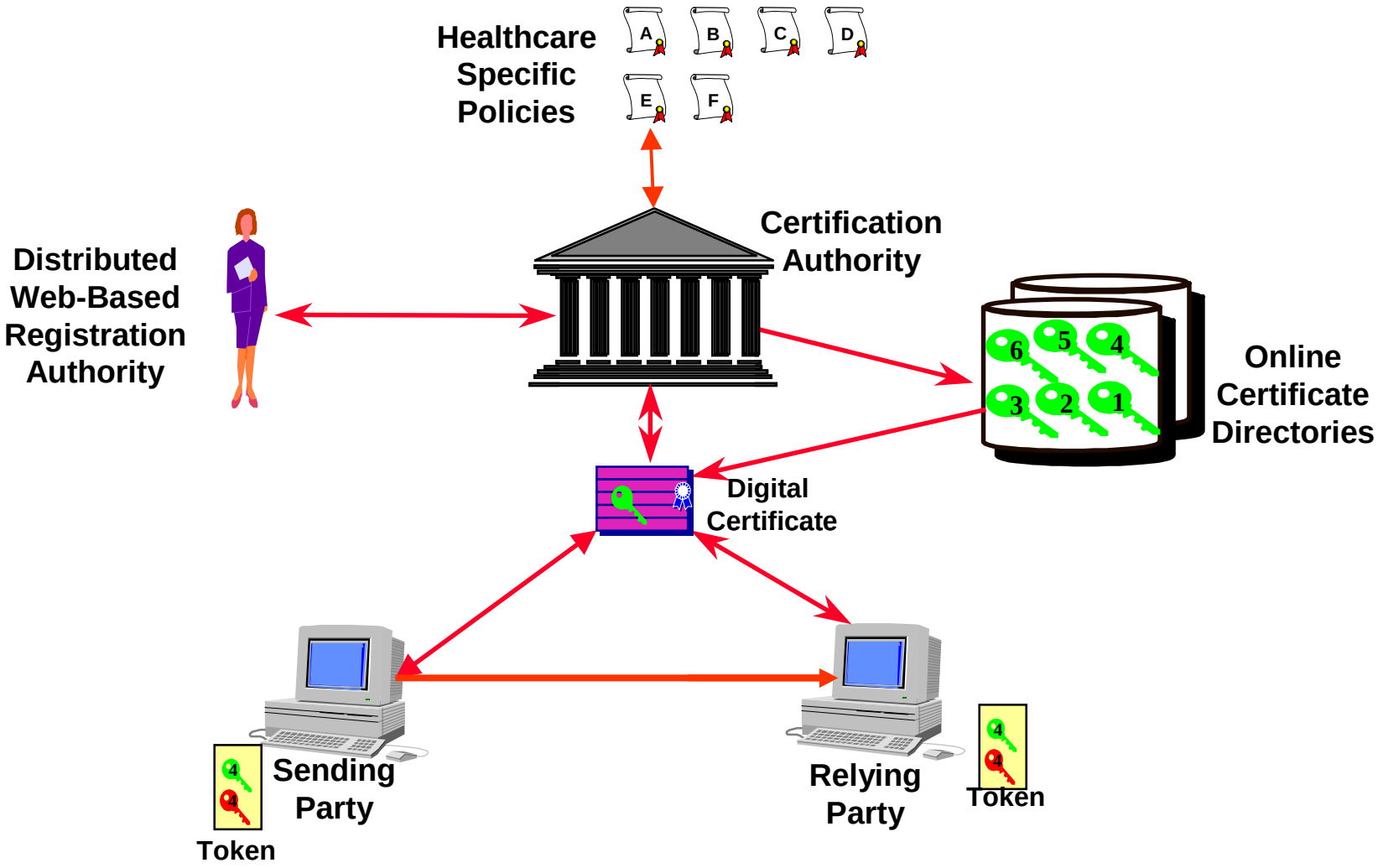


Enabling Solution: Trusted Healthcare Identity Service



Enabling Solution:
Trusted Healthcare Identity Service



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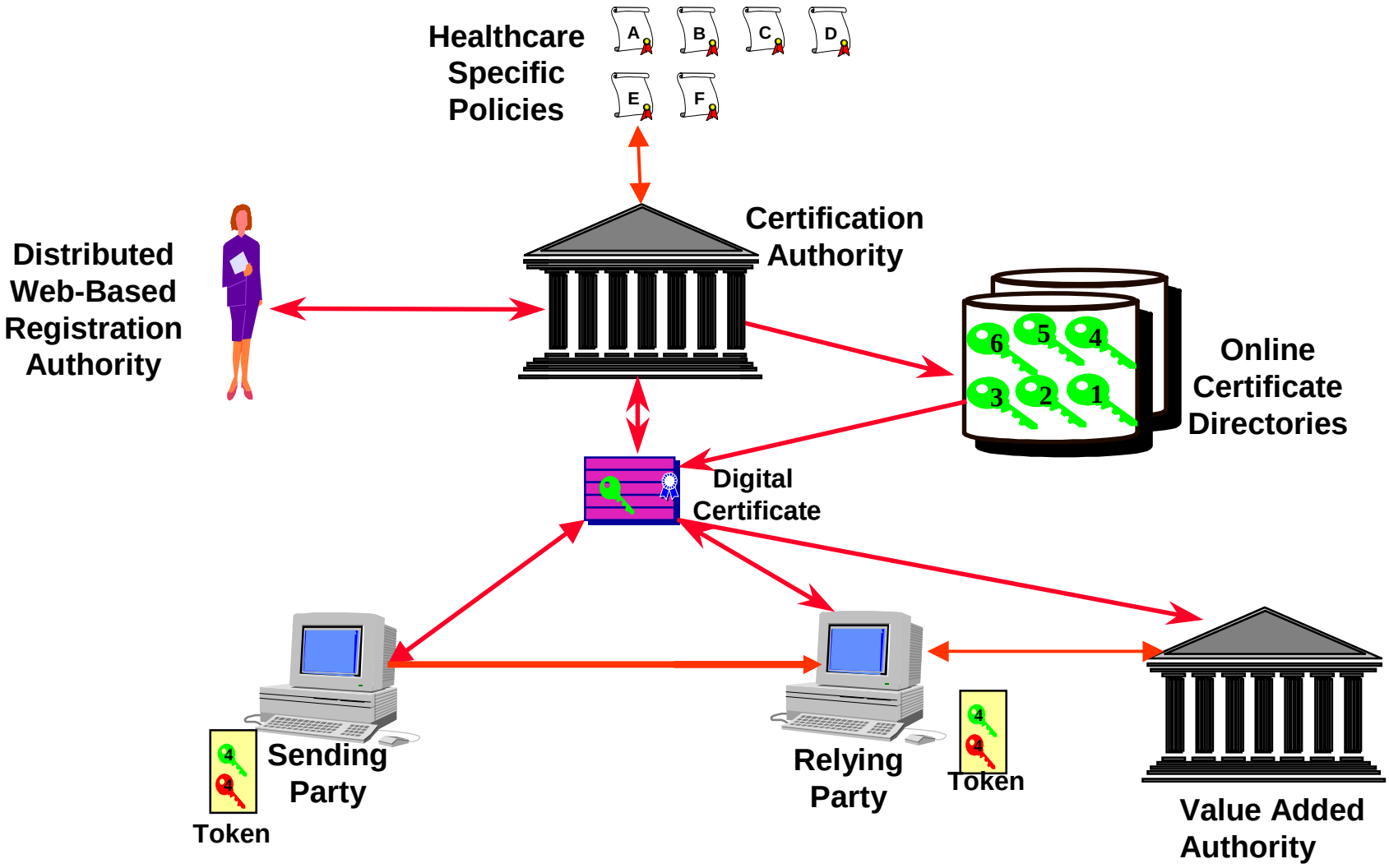

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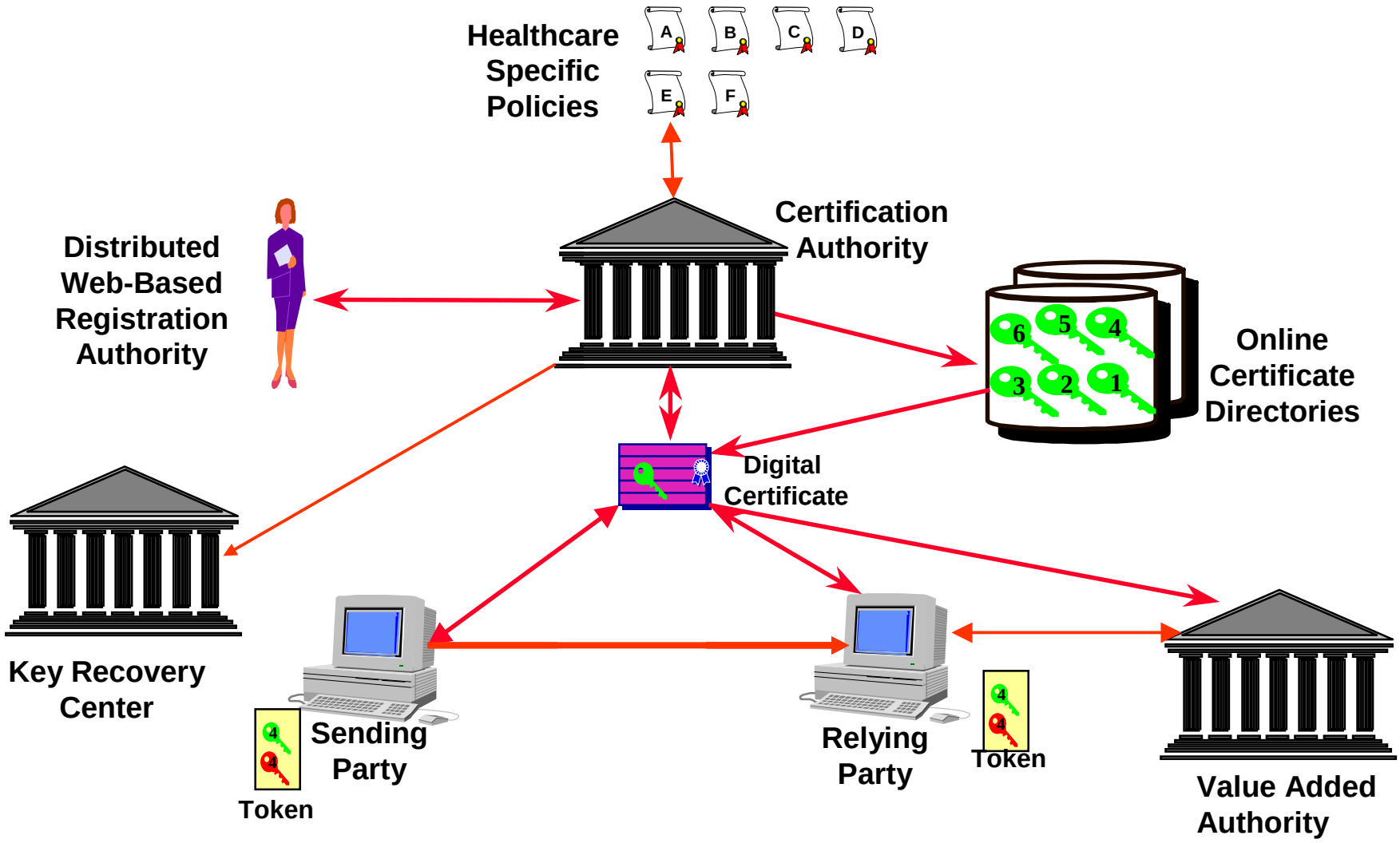

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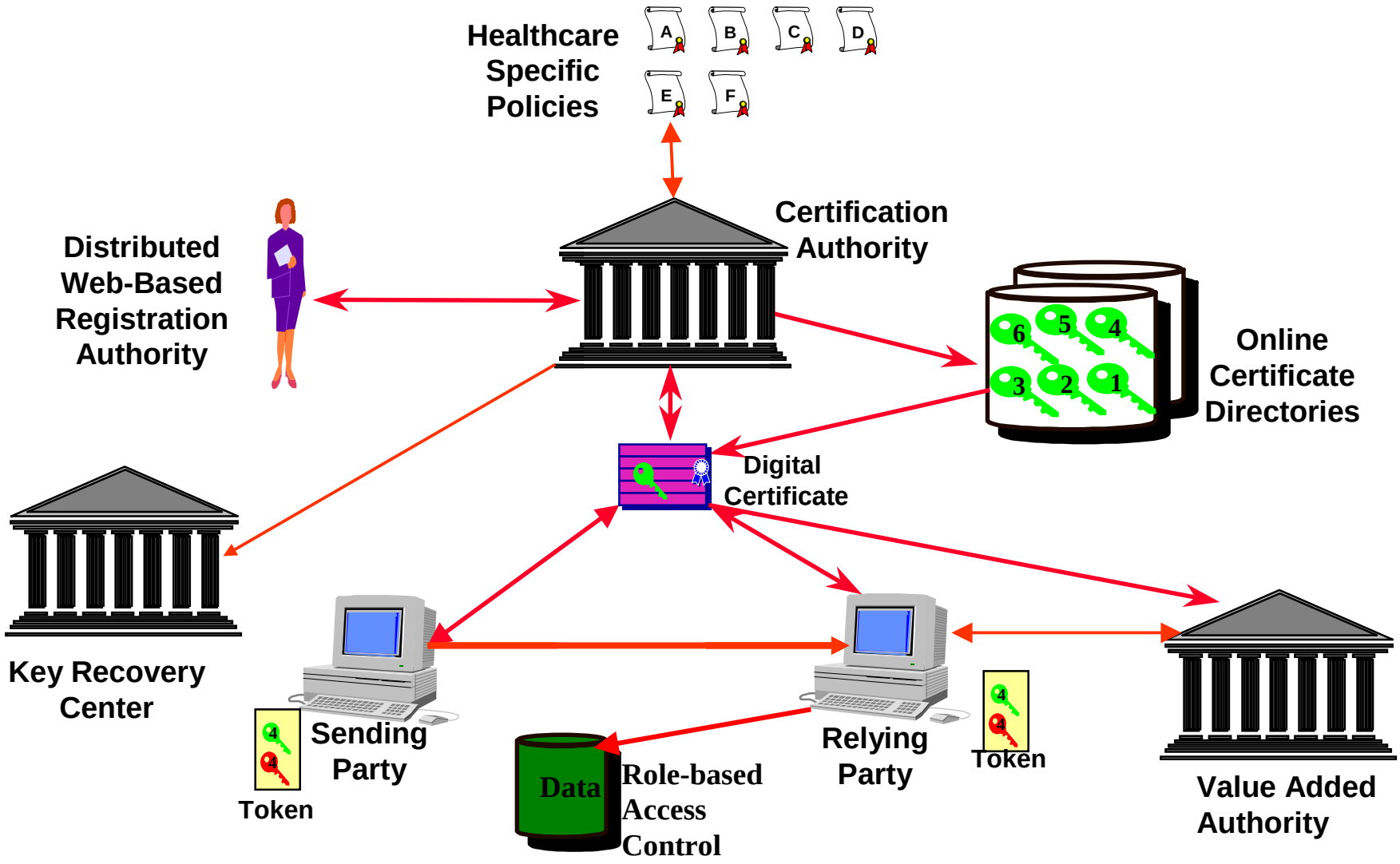

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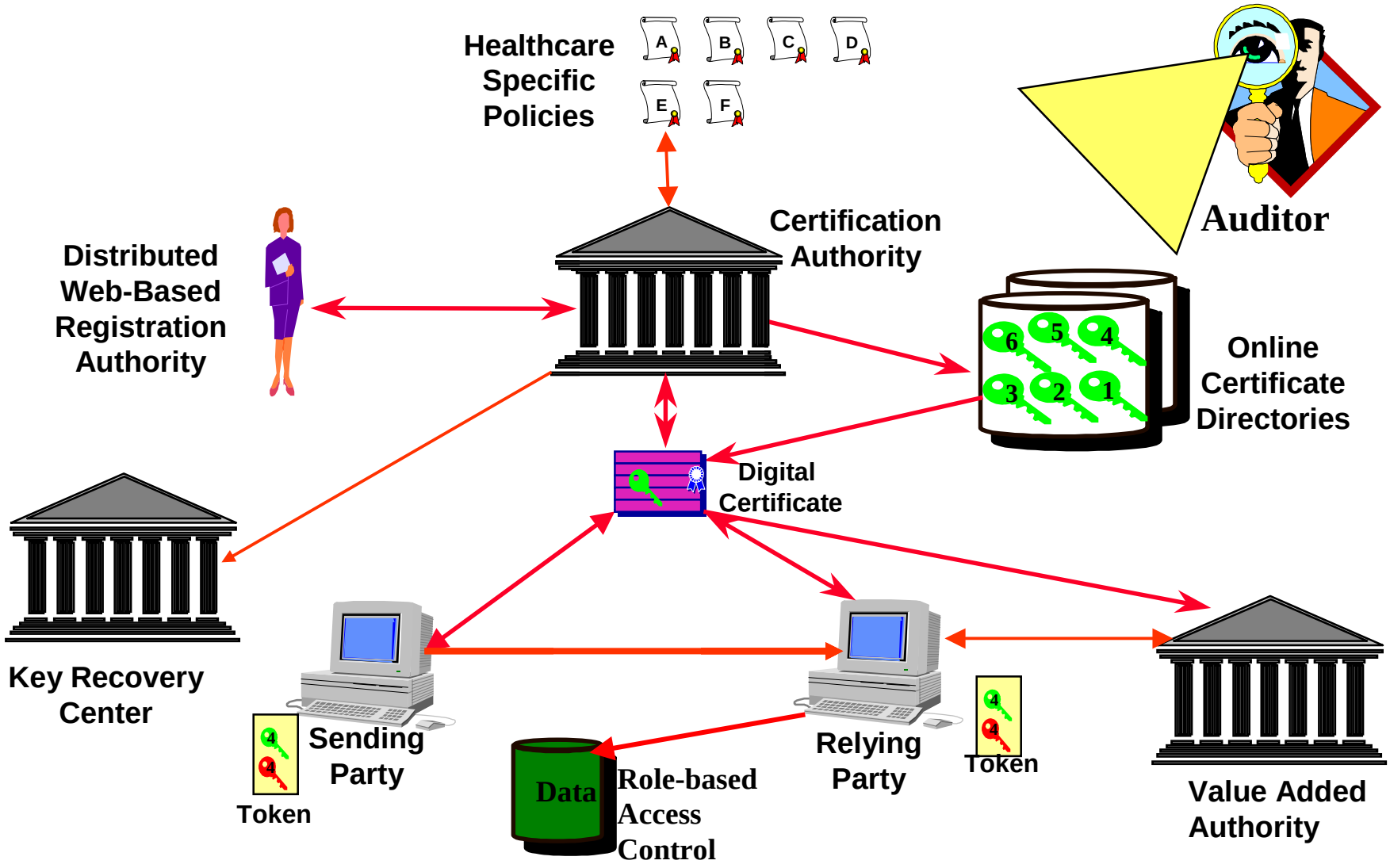
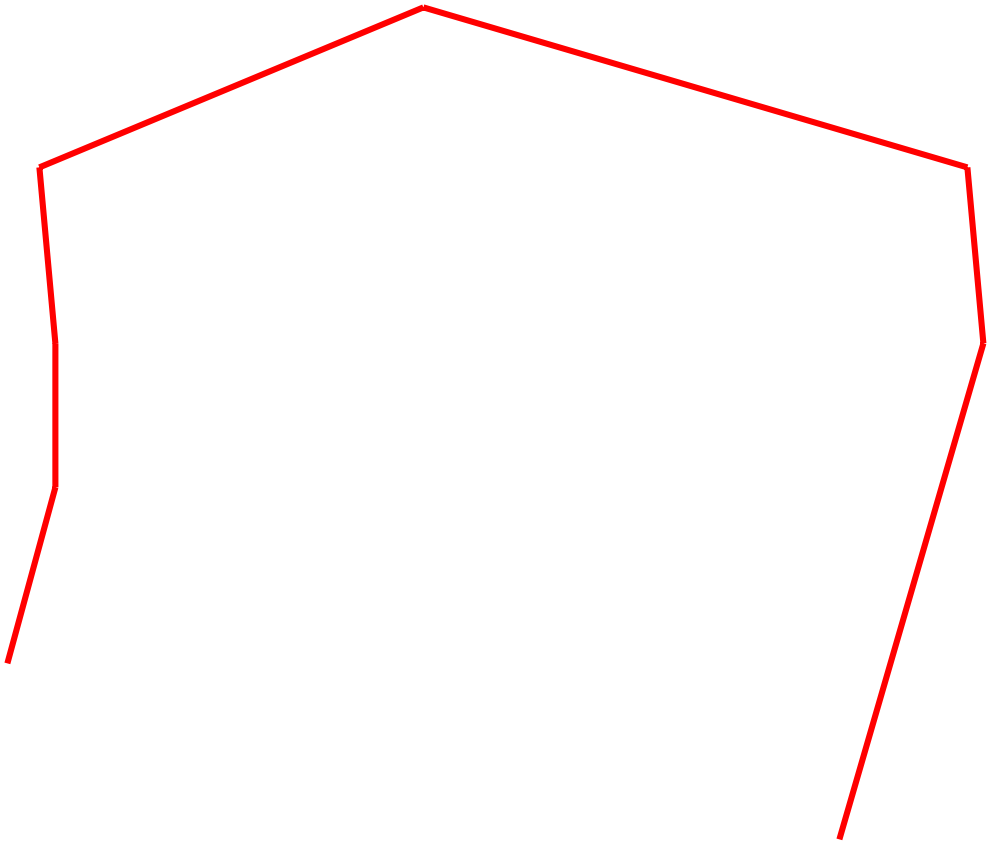


Healthcare Policy **Types**

- Patient
- Employee
- Licensed Health Care Professional
- Board Certified Professional

- Organizational(Payer/Employer/etc.)
- Licensed Healthcare Organization (Hospital/Pharmacy/etc)

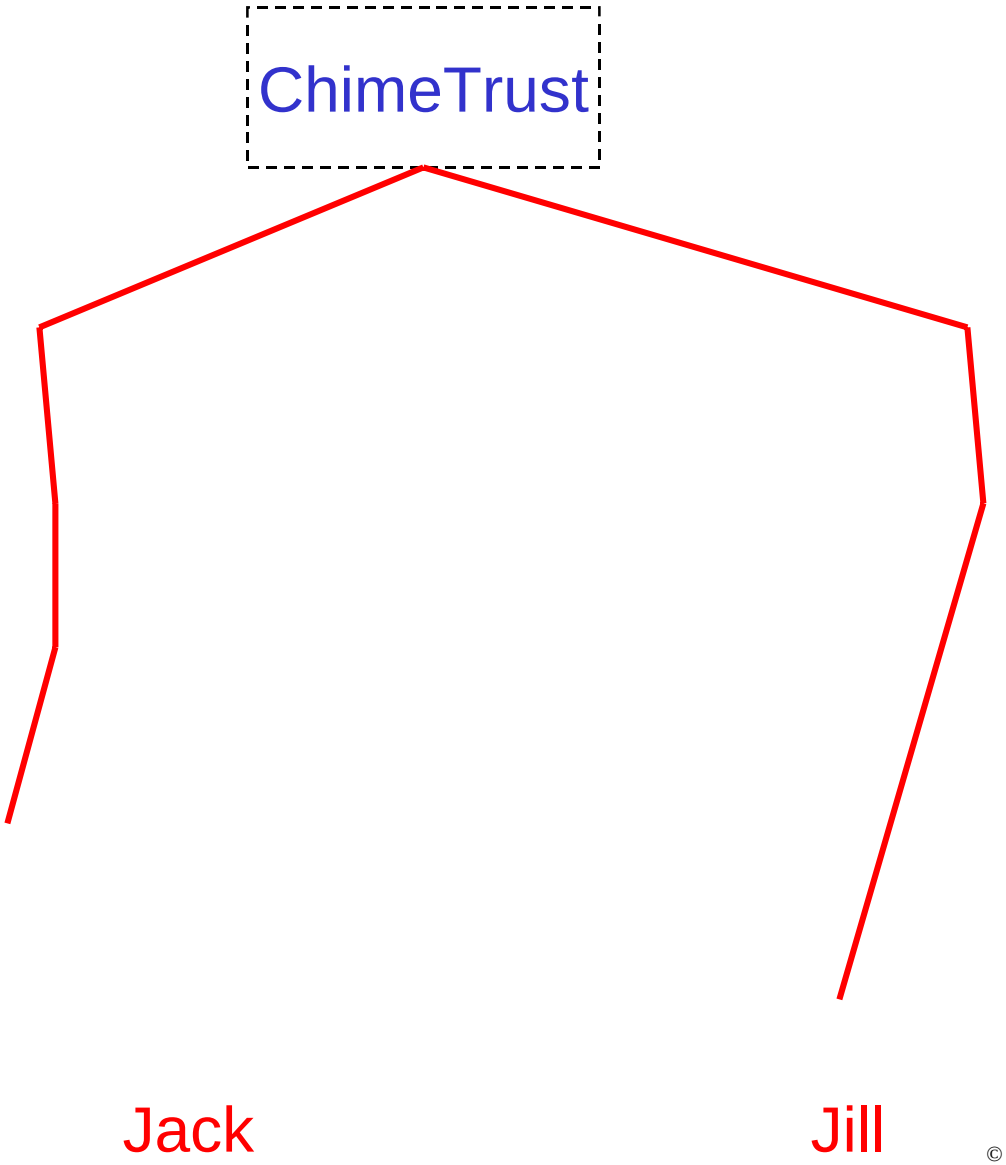
ChimeTrust
Chain of Trust



Jack

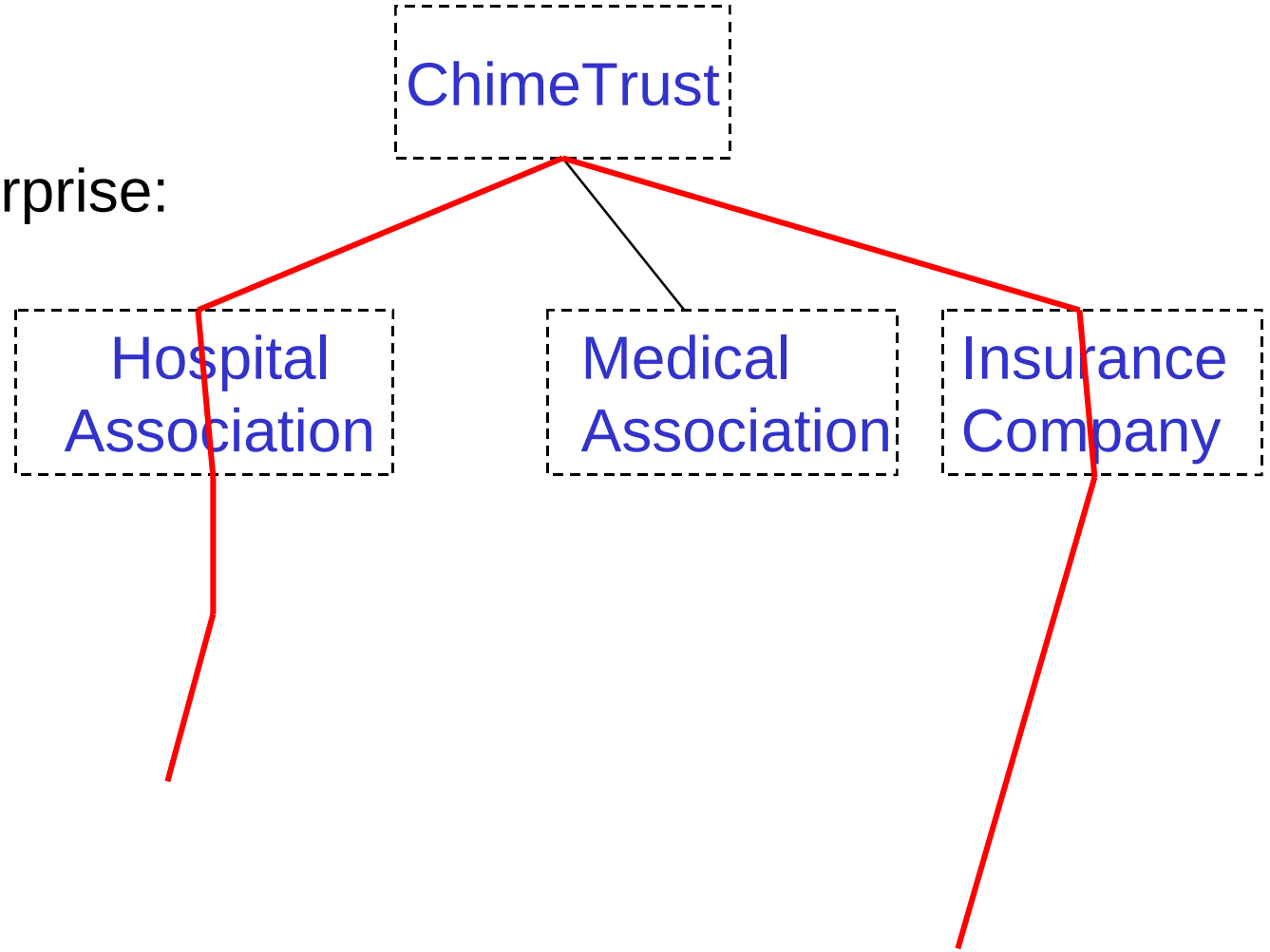
Jill

ChimeTrust
Chain of Trust

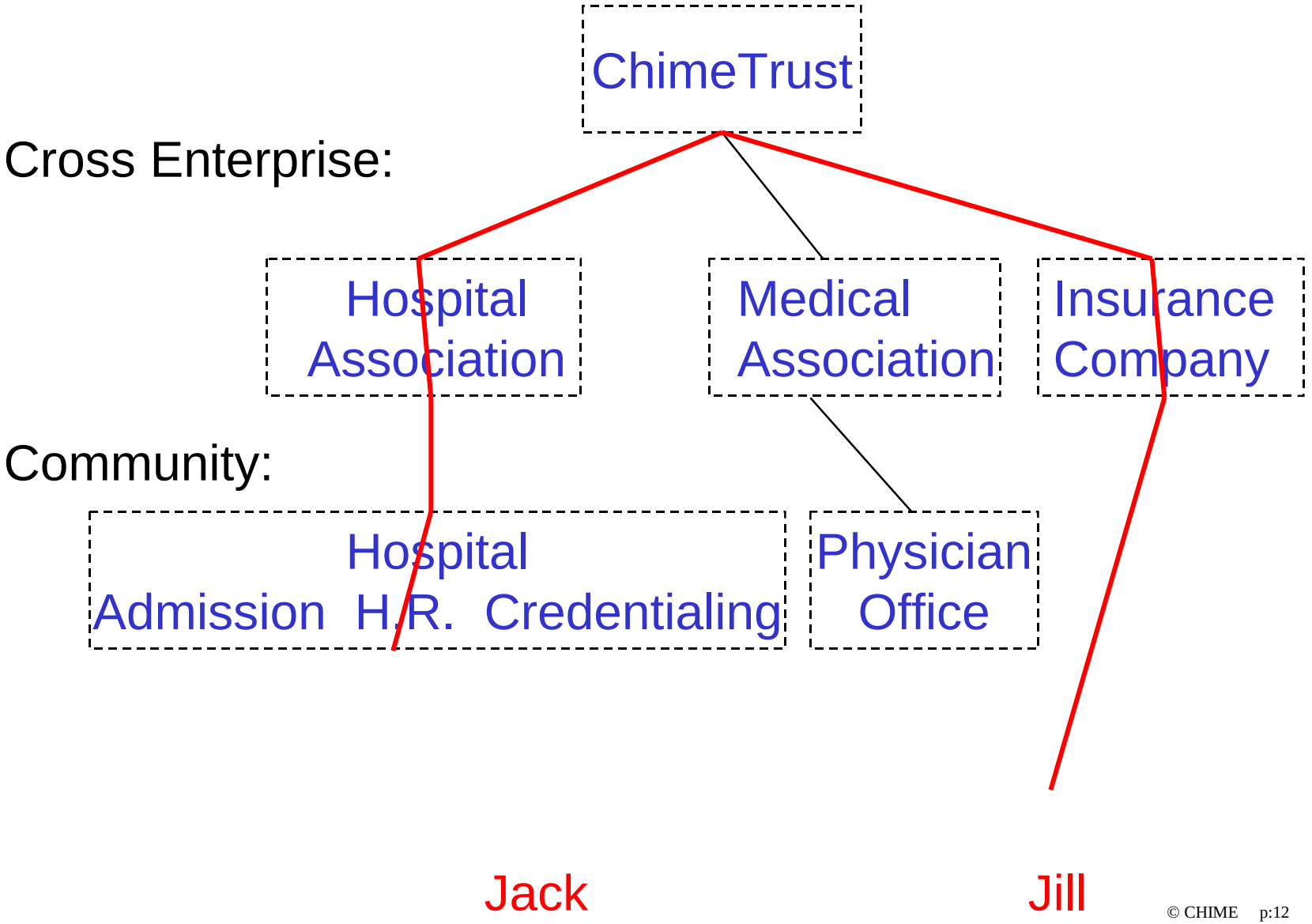


ChimeTrust
Chain of Trust

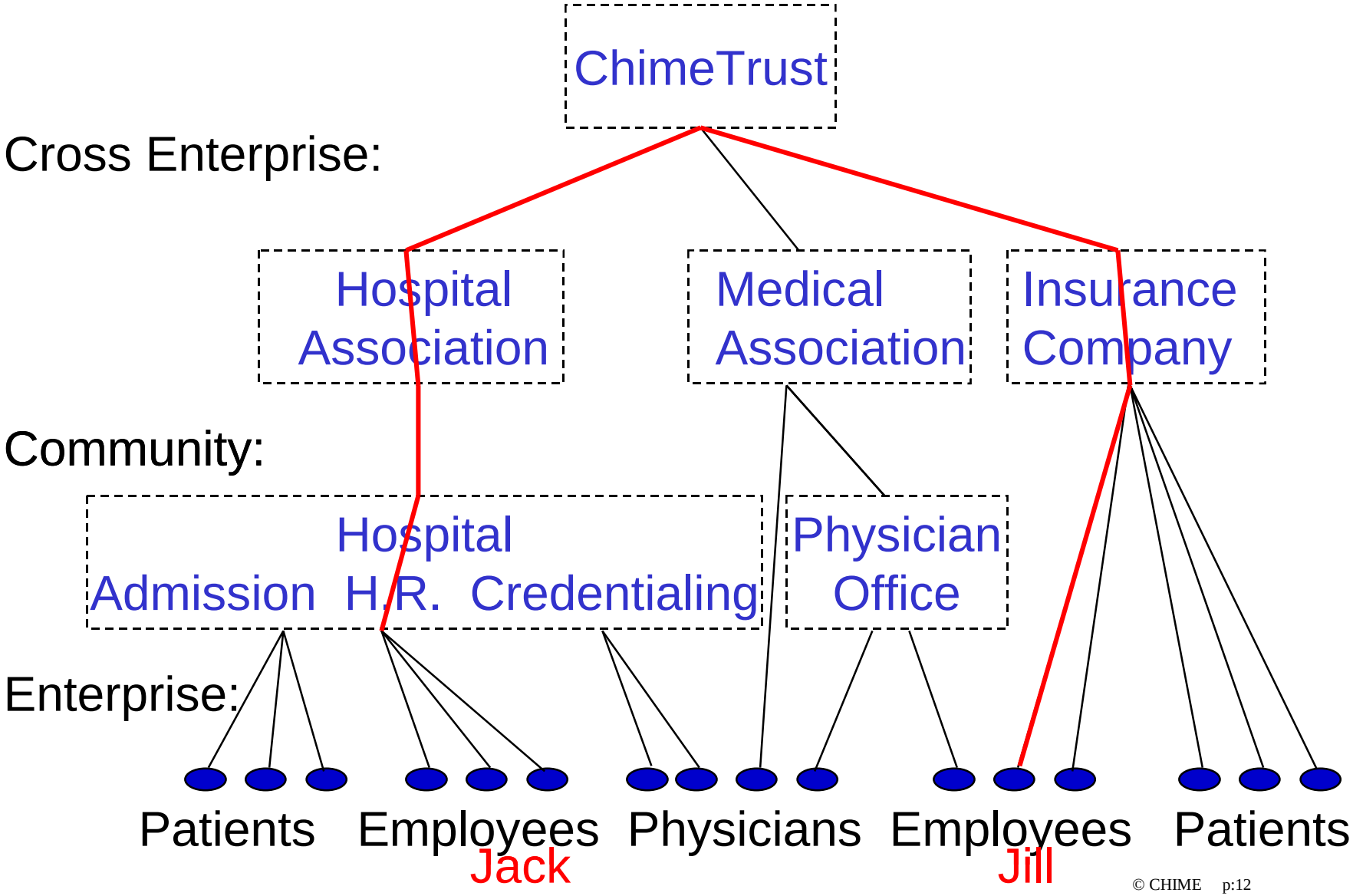
Cross Enterprise:



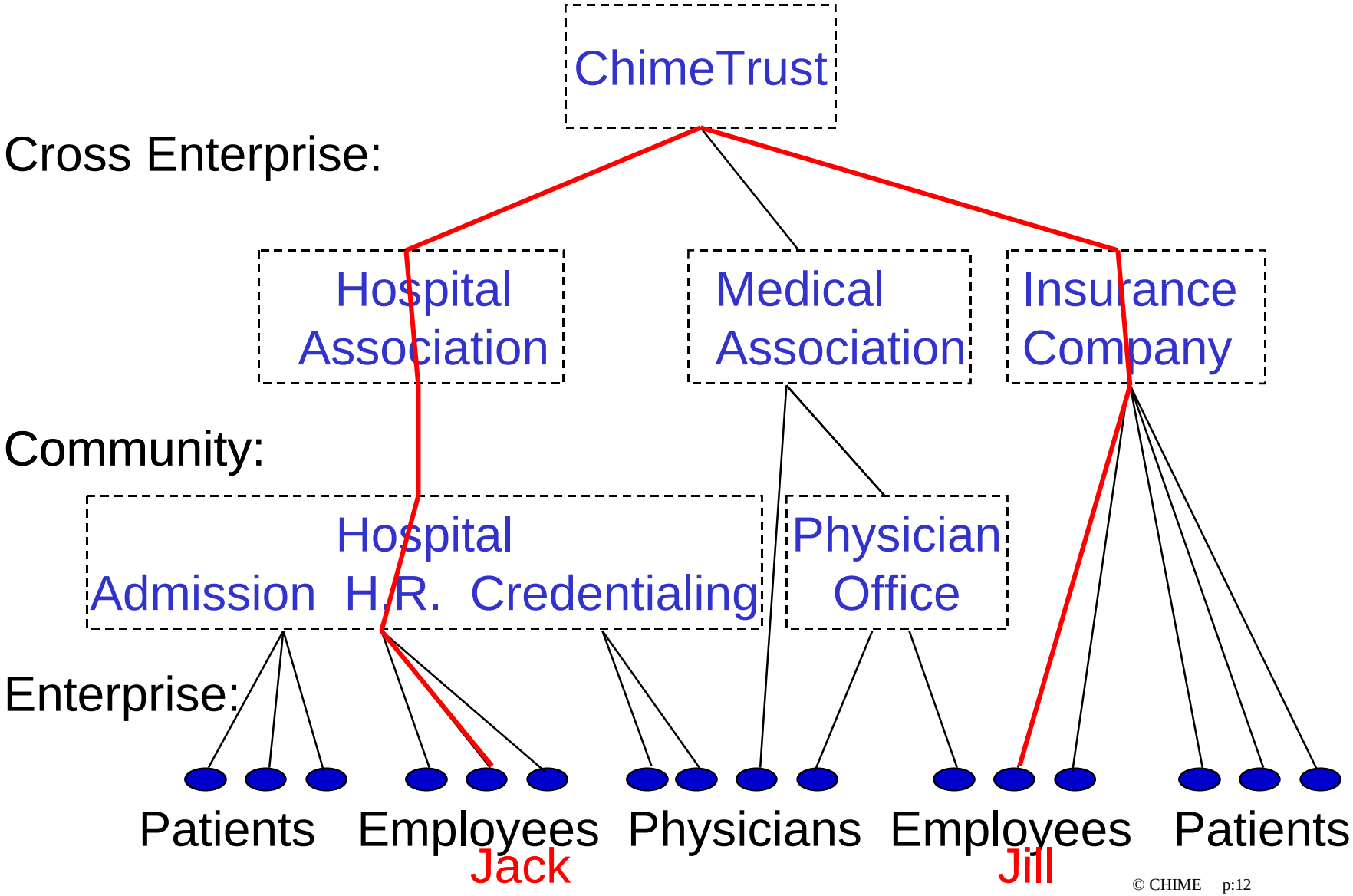
ChimeTrust
Chain of Trust



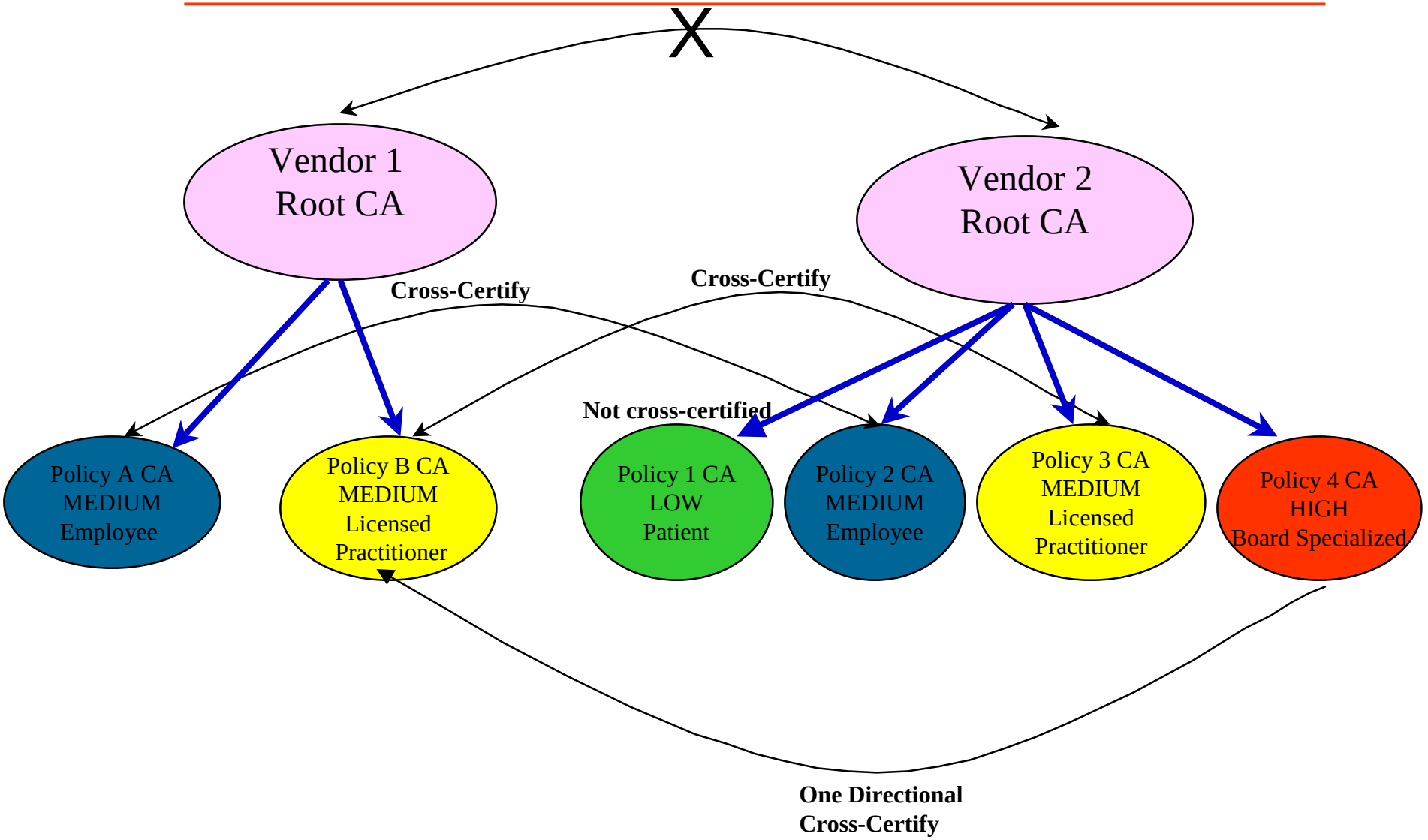
ChimeTrust
Chain of Trust



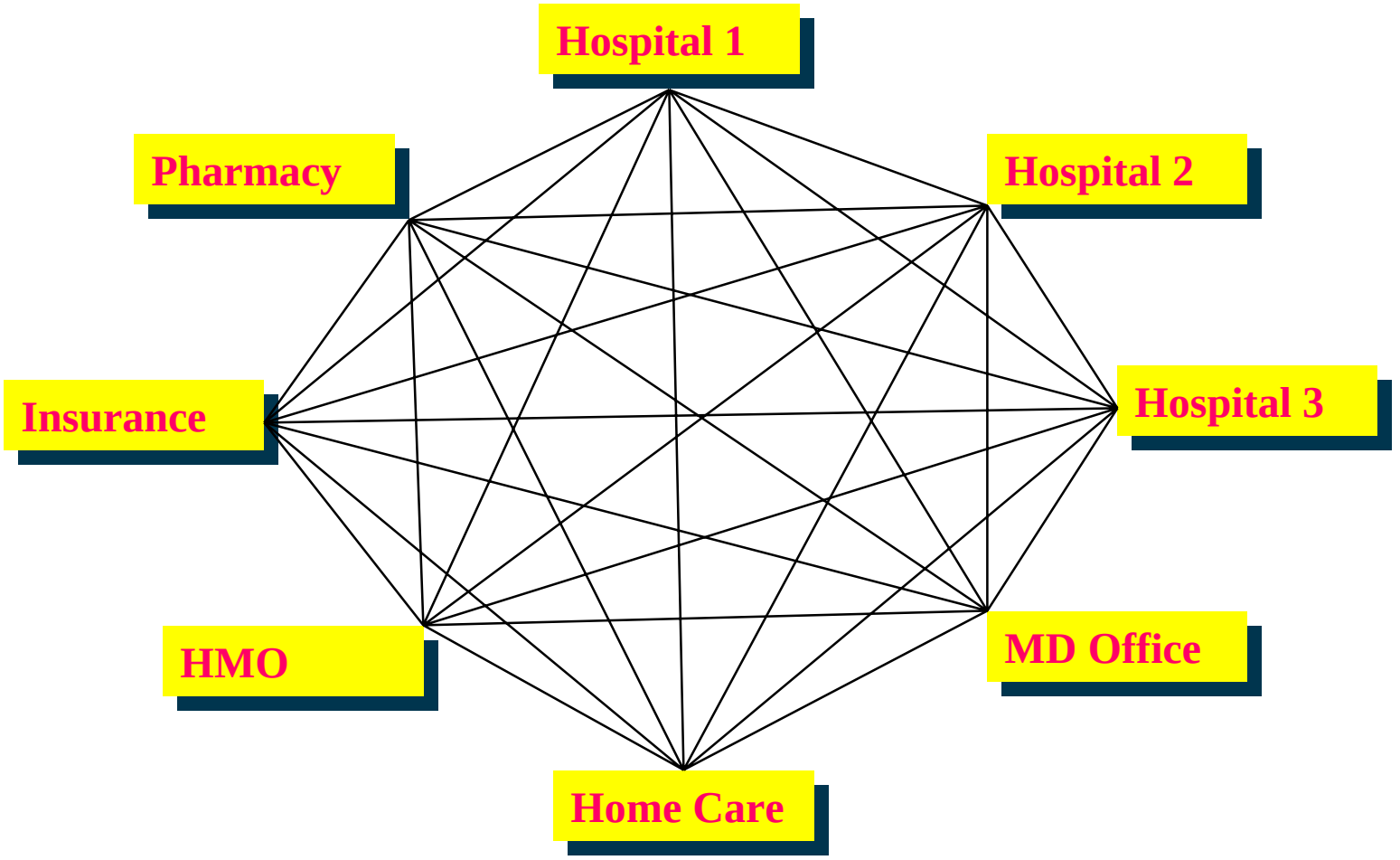
ChimeTrust
Chain of Trust



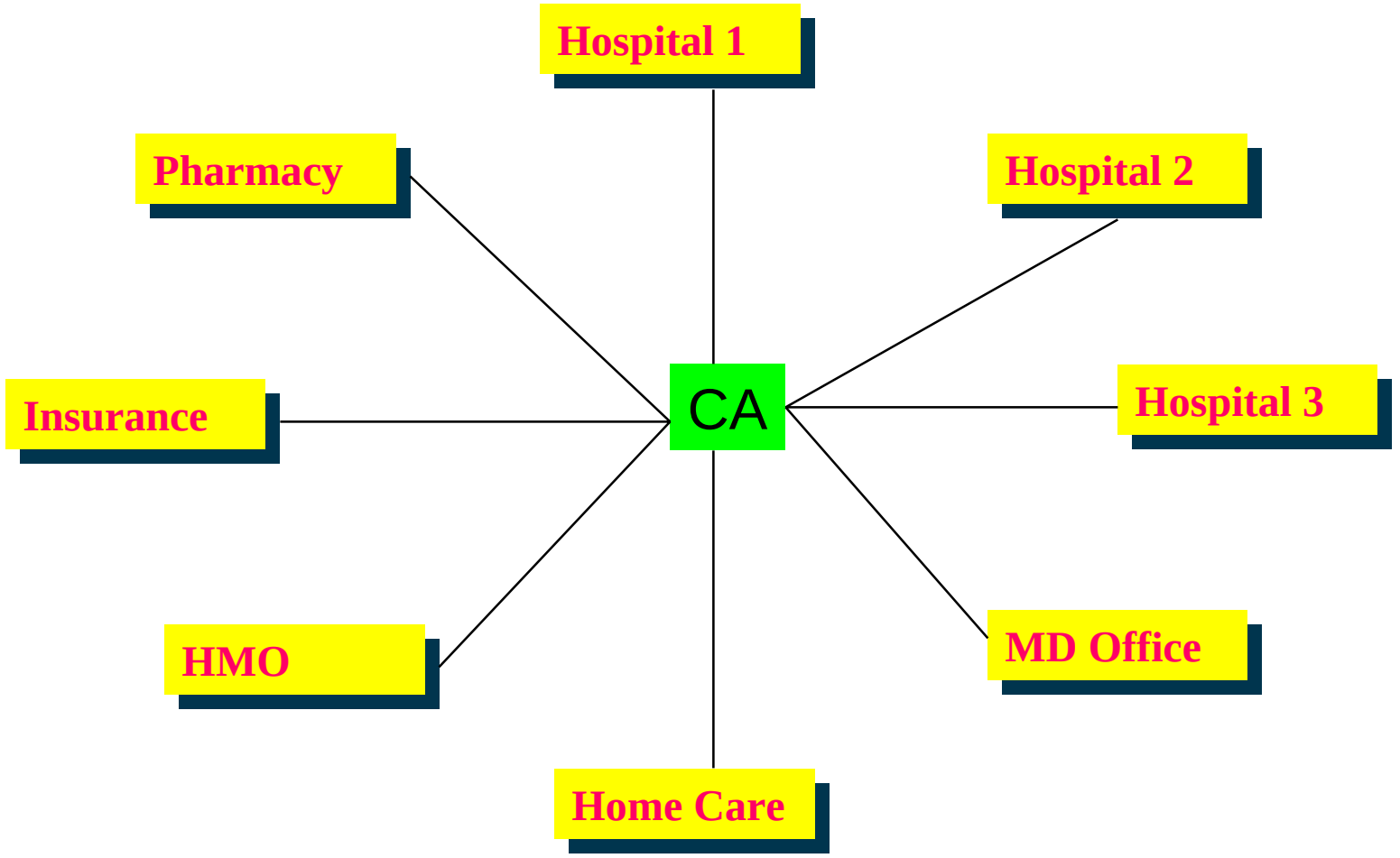
Policy Cross-Certification Issues



Trading Partner Agreements



Trading Partner Agreements
New Business Case



Federal PKI Semantic Framework (4)

- Backup of Signature Keys
  - Rudimentary: Not backed up
  - Basic: Must not be backed up
  - Medium: Must not be backed up
  - High: Must not be backed up

Source: PKI Certificate Policy Requirements Analysis; Revised Draft, February 18, 2000; PEC Solutions, Inc.

Federal PKI Semantic Framework (10)

- CA standard for proof of identity from certificate applicant
  - Rudimentary: No Proof required: on-line or in person with 2 IDs
  - Basic: Proof required: on-line or in person with 2 IDs
  - Medium: Proof required: on-line or in person with 2 Ids incl. 1 government picture ID
  - High: Proof required: in person required with 2 IDs incl 1 government picture ID

Source: PKI Certificate Policy Requirements Analysis; Revised Draft, February 18, 2000; PEC Solutions, Inc.

Verification Requirements: Individual

- A **government issued photographic Identification**
- A **second form of identification**: social security card, Credit card, utility bill, birth certificate, tax form
- **Subscriber ID** for Insurance Plan or Health Care System
- **Employee ID** or letter from employer on employer letterhead indicating current employment status.
- Certificate **Request/Contract** duly signed.
- Certified, State-Issued Healthcare **License**
- **DEA** Number
- Certified **Board-certification** Certificate

Federal PKI Semantic Framework (11)

- Requirements of CA record maintenance
  - Rudimentary: No requirement
  - Basic: At least 7.5 years
  - Medium: At least 10.5 years
  - High: At least 20.5 years

Source: PKI Certificate Policy Requirements Analysis; Revised Draft, February 18, 2000; PEC Solutions, Inc.

Federal PKI Semantic Framework (14)

- End entity Private key protection requirement
  - Rudimentary: No requirement
  - Basic: May be in hardware or software
  - Medium: May be in hardware or software
  - High: Must be in hardware

Source: PKI Certificate Policy Requirements Analysis; Revised Draft, February 18, 2000; PEC Solutions, Inc.

Digital Certificates On Smart Cards

Front

DOE

John Doe, M.D.

Pediatrics

Employer's Logo

Back

If Found, Return to:

CHIME-Trust
P.O. Box 90
110 Barnes Road
Wallingford, Ct. 06492

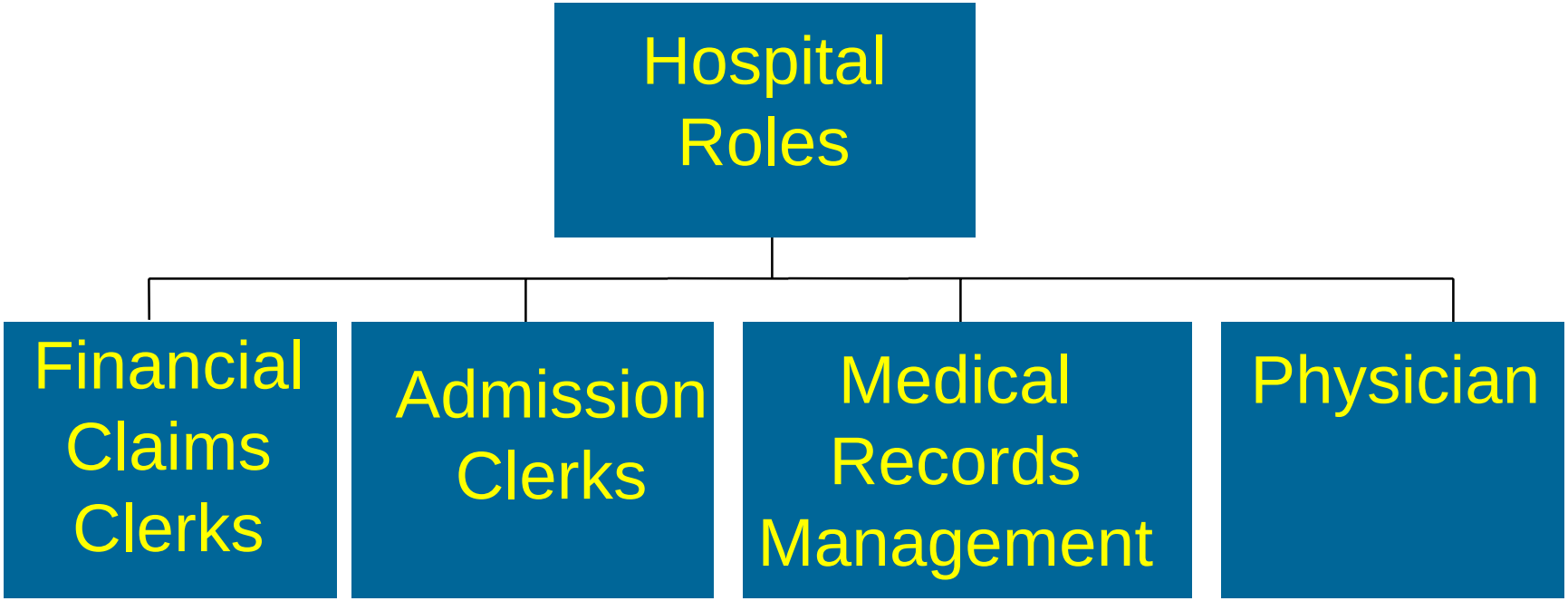
Help-Line:
(203) 294-7394
registrar@chime.net

Federal PKI Semantic Framework (16)

- Extent of damage if end entity signing private key compromised
  - Rudimentary: No injury or loss
  - Basic: Minor injury
  - Medium: Potential significant financial loss or require legal action for correction
  - High: Potential loss of life, imprisonment, or major financial loss

Source: PKI Certificate Policy Requirements Analysis; Revised Draft, February 18, 2000; PEC Solutions, Inc.

Example: Organizational Authority



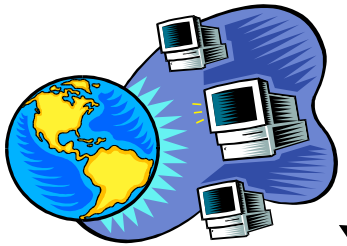
Based upon ASTM Standards

Secured Applications

Prescription Fulfillment

Patient Record Review

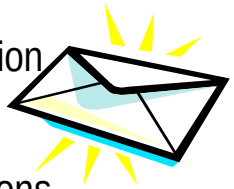
Research Collaboration



Consultation

Referrals

Prescriptions



E-mail

Patient Record/History Review

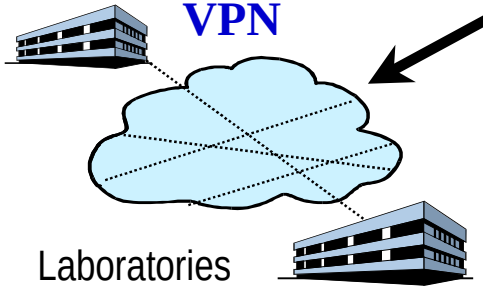
Verification of Insurance Eligibility

Secure Desktop

Web

PKI

VPN



Laboratories

Multi-Hospital/Clinic

Report Review/Approval

Caregiver Access to Patient Record/History

Generate orders

****

Single Login

E-Commerce

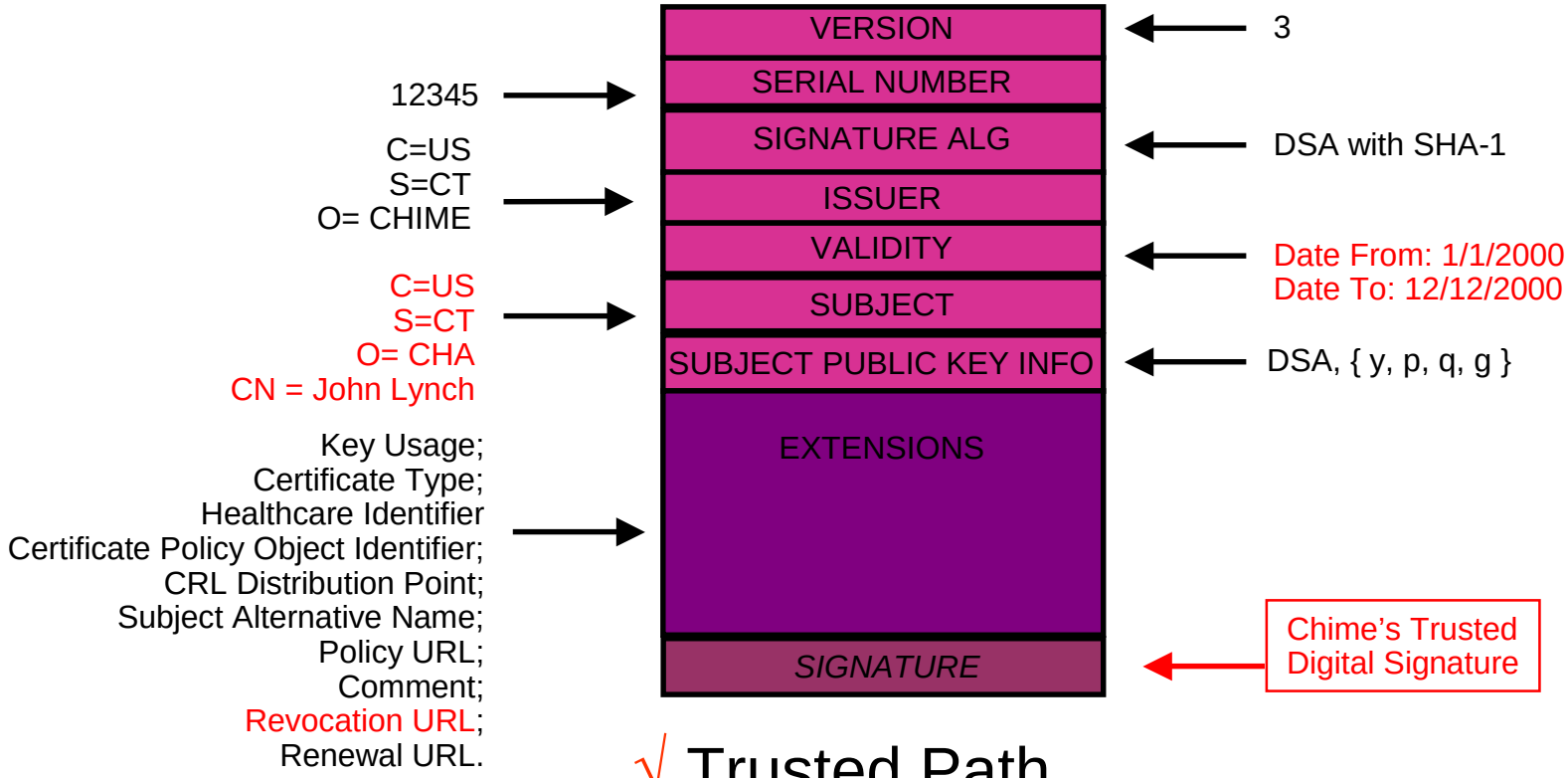
EDI/Claims Processing/Payment

Accounting and Billing

Payment to Vendors/Suppliers

Demo e-mail Signatures

Requirement:
Digital Signature Validation



- √ Trusted Path
- √ Trusted Signature
- √ Valid Dates
- √ Not Revoked

Healthcare Applications

- Lanier - Dictation/transcription
- Blue Cross: Web access/eligibility
- Hospitals: web retrieval lab/results
- physical access
- Orders
  - Prescriptions
- Observations/Findings
- Documents requiring signatures (gov forms)
  - W10 referrals

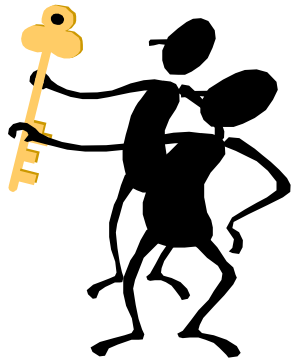
Issues

- Cannot look at digital signature in isolation
- Microsoft Outlook example:
  - e-mail on cert must = sendor e-mail
  - forwarded e-mail drops signature
  - Cannot discriminate encryption/signature cert
  - e-mail “from” field not necessarily sendor
  - accepts preloaded generic trust
  - No way to automatically define OID trust
  - No multiple signatures
- Details in cert - no validity test by COTS
- Biometrics NOT signature, no standards

Recommendations:

- Standard Policies/DEA/Federal (VA…)/employee…enabling not mandated…common OIDS…create TRUST
- Bridge at policy level - HHS say equal…Crate TRUST
- Standard Credentials/Authority within healthcare
- Standard audit/License of CA/RA to meet Medicare policy-evaluate using Federal Semantic framework and policies…Create TRUST
- Education of providers/payers
- Cross state standards
- Lead by example - HHS use PKI, require for Medicare data
- Allow CA intermediary in trading partner agreements
- Allow CA to be Provider Identifier issuer
- Create testbeds ie NJ for DRGs
- Work vendors ie Microsoft,... with requirements

Together - We Hold the Key !



Health PKI

For more information contact:

John Lynch
President and CEO
HealthPKI
7 Buttonwood Circle
Cheshire, Ct. 06410-4305
phone: (203)272-0132
e-mail: jtlynch@snet.net